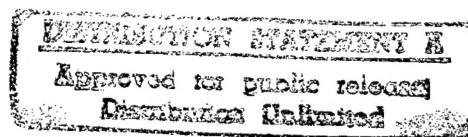




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Science & Technology

***Central Eurasia:
Science & Technology Policy***

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Central Eurasia: Science & Technology Policy

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Andreyev Interview on Future of Russian Physics
927A0116A Moscow IZVESTIYA (Morning edition)
in Russian 4 Feb 92 p 3

[Interview with Vice President of the Russian Academy of Sciences Academician Aleksandr Andreyev, director of the Institute of Physical Problems imeni P.L. Kapitsa, by IZVESTIYA correspondent Kim Smirnov; date and place not given: "The Residence Permit of Science"—first paragraph is IZVESTIYA introduction]

[Text] Under the conditions, when at foreign embassies the lines of people wishing to leave the country are growing with each day, when the press is full of rumors about secretive Soviet physicists who intend to give the atomic bomb to one of the Arab states, when society overnight passed from the era of perestroika to the era of survival and it, they say, no longer has time for science, it is the right time to find out just what in reality is happening if only with the main science—physics. Our correspondent turned to one of our leading physicists, Academician Aleksandr Andreyev, director of the famous Institute of Physical Problems imeni P.L. Kapitsa, who was just elected vice president of the Russian Academy of Sciences (RAN).

[Andreyev] What is happening? Today the fate of science in our country is unpredictable. For no one can say what unpredictable factors literally tomorrow might change its fate. Thus, for example, the present freedom of someone to set prices at his own sweet will has made airline tickets abroad unaffordable for the academy (a round-trip flight to the United States is now more than 90,000 rubles, and this is with a 70-percent discount!). This is the complete end to international scientific cooperation. A joke is already going round the academy: "It is better to fly away in one direction. It is twofold cheaper."

The disintegration of the enormous state and its powerful military-industrial complex, which traditionally replenish research, including theoretical research, and, finally, the progressing brain drain and the disastrous state of the higher school cannot but affect the state of research. And the revived Russian Academy of Sciences has been forced to take the first steps namely to save basic science in Russia.

As to our theoretical physics, although the indicated factors have already struck it, just as all the basic sciences, its level as before corresponds to the world level. And I believe in the future of domestic physics.

If the situation stabilizes, the Russian state will obtain new (and considerable!) opportunities to support science and to rely on it. The question is, will we avail ourselves of these opportunities? My colleagues and I from the presidium of the Russian Academy of Sciences are troubled by the fact that in recent years the attitude of our society toward science has changed drastically, for the worse.

Of course, we are in many respects paying for the snobbery, the indifference to the everyday needs of people, and the bureaucracy, which for a long time corrupted the scientific world. But I will never understand and accept the snobbery, to which not only ignorant people, but, unfortunately, also many publications, which consider themselves intellectual, are subjecting science with pleasure. It is still all right, provided here they would in general "sober up" and renounce all idolatry. It is not, after all, that way! Only now they are praying to sorcerers, people with extrasensory perception, astrologers, and stargazers.

I am not at all opposed to all this being present in our life. We are well aware to what the aspiration to drive all of society into one faith, without the right to a miracle, eccentricity, dissent, and the worship of its own gods and prejudices, leads. But the mass flight of each and everyone from science in the direction of the irrational is, believe me, not flight in the direction of a miracle. Rather, it is flight from a miracle. From the beautiful and complex real world, which also includes spiritual peaks, in the direction of routine stereotypes and substitutes. Yes, there are serious social reasons for that. But they by no means justify the sense of what is happening, which is destructive for the spiritual world.

There is another rather popular misconception of our times. That now we do not have time for science. That the main thing is to survive and to supply counters with daily bread. The complete failure to understand that you will not do this without science. That it is possible, of course, to tear scientists away from their synchrophasotrons and telescopes and to throw them into kolkhoz or leaseholder fields. We learned this well during past decades. But for some reason there was no more produce on the counters.

[Smirnov] There is a song by Vysotskiy, in which they remind scientists of their duty to the people:

You sit and decompose molecules into atoms,

Having forgotten that potatoes are decomposing in the fields....

[Andreyev] Exactly. The only trouble is that earlier there was administrative idiocy from the top, while now this idea is being cultivated very democratically, so to speak, from the bottom, in the broadest masses.

[Smirnov] You mentioned the brain drain. Everyone is now talking about it. But what is the real picture of it?

[Andreyev] About 40 percent of the good theoretical physicists have now left the country. Either for a temporary job or forever. Fewer experimenters have left—about 12 percent. It is far more difficult for them to part with the units and instruments, which were developed by their own hands and brains, their entire life is invested in them. But there is also another reason here. On the one hand, our technological lag is also affecting the level of experimental physics. But, on the other, precisely it,

however paradoxical, is breeding quite unique experimenters, who brilliantly "wriggle out" of the most hopeless situations, which would put the Left-Handed Smith on the spot.

Here is an example that is close to me. At the Institute of Physical Problems we deal with low temperatures. And in experiments it is necessary all the time to add liquid helium by pouring. In the West automatic units for adding liquid with the most sophisticated electronics have been designed. But in our country they devised very inexpensive and reliable ones—mechanical ones. Foreign visitors are completely overcome with them. They say: "Listen, you have a gold mine! Why do you not sell them?" Indeed, why? Because introduction under our conditions to this day is an inefficient matter. True, now we are beginning to set up commerce. Perhaps, we will also begin to make them for sale....

This is not an isolated fact. At various academic institutes I have repeatedly seen with what admiration foreigners, who work on first-class equipment, talk about some experiments, which have been organized here at the highest level of intellect, but with the minimum of physical assets.

[Smirnov] The T-34, the best medium tank of World War II, was made on the basis of the same principle: the maximum of new ideas with the minimum of material resources.

[Andreyev] I want to stress that all this is not only from our poverty, but also from the unusual wealth for talents. It is possible only to guess what kind of return this wealth will yield, if with time it is backed by a high material well-being of all of society. One will not increase this very well-being without relying on science. Although for the sake of fairness it must be said that, given the overall poverty of the people, the state during the Soviet years did not stint science, and as a whole scientists (in any case starting with doctors and professors) until recently in our country were not the poorest estate.

[Smirnov] However, the present impoverishment of this estate—will it not also affect its self-return?

[Andreyev] It will. If a person must feed a family and his basic occupation—science—does not afford an opportunity for this, he is inevitably forced to seek earnings on the side. But real breakthroughs in science are paid for by the enormous focusing, concentration of intellectual forces "at one point." Therefore, diversion for such tasks is an irreparable tragedy.

Such a brain drain is far more frightening than departures of scientists abroad, which, incidentally, is a normal occurrence in the modern civilized world, provided here the researcher does not break with his homeland and in the end enriches its intellectual potential.

The threat for young scientists is quite real. Nevertheless I have grounds not to paint all these young people in the tones of primitive mercantilism. If you come to our

institute even on Saturday night, you will see a large number of lit-up windows, you will see our young, very capable lads, who forget about time for the sake of their science and work with genuine enthusiasm. They earn starvation wages. But this, too, for the time being does not stop them. I console myself with the hope that not we alone are such in today's Russia. But will enthusiasm alone suffice for long?

[Smirnov] What is the level of present-day physics education in the country? How is the "replenishment" of science by the higher school going? For example, the replenishment specifically of our academic institute?

[Andreyev] Well, for precisely us things are relatively well. We are traditionally "replenished" with graduates of the Moscow Physical Technical Institute, and talented lads are appearing among them no more rarely than earlier. Here every other associate is either an undergraduate, special student, or graduate student of the Physical Technical Institute, while every permanent associate teaches there.

But for the country as a whole this "replenishment" is decreasing sharply. And the future of the academy seriously depends on how we will integrate with the higher school. Now many people are citing the experience of the United States, where basic science makes its nest, as a rule, at university laboratories. One must not blindly copy this experience. We also have our own rather good traditions in science, which it is wrong to reject.

But it is also wrong not to see that the American version insures the researcher against any surprises. For in theoretical research results can be replaced by protracted "dead spaces." For the period, when for a person "nothing turns out," some social guarantees should exist for him. And steady contact with the higher school provides them most easily of all. It is worthwhile for us to ponder in earnest and in good time over these realities of basic science under the conditions of market relations.

[Smirnov] An idea is now being discussed: to include leading universities in the system of the academy. Moscow or Petersburg, for example....

[Andreyev] Our best universities are living organisms which you will not alter on the move. Moscow State University, for example, in scale is most comparable with the academy. The closer coalescence of academic and university science than before is a protracted and complicated process. But it is necessary to strive for unification. So that the science worker would have this "subsistence wage"—regular teaching work.

[Smirnov] I had occasion to write about a theoretical physicist who worked as a janitor. I know many people, who obtained significant results in theoretical physics and mathematics, are having works published in foreign scientific journals, but have been forced to get jobs not in their specialty. Our very system of the organization of

science forced them out of itself and gave rise on the scale of the state to this additional drain of brains into the sand.

[Andreyev] Yes, these unclaimed intellectual forces are a great offense of the system. And there is one solution. The democratization of all scientific life.

Let us take the financing of research. It did not foresee such people at all for work. It is fortunate that Kapitsa, Kurchatov, and several other of our world authorities with foresight massed around themselves quite a number of "eccentrics" and let them deal outside all programs and plans with what they had a liking for, and as a result new discoveries, directions, and even new sciences emerged. Yet these were not the rule, but exceptions to it.

Now we will have, as is evident, a Russian state, budget-carried basic research fund. It would be good if foreign and "home" investor-entrepreneurs would make their contributions to it (they can also establish public funds for the support of science). It would be a good idea to have a fund of the Commonwealth of Independent States. But here the conditional verb "would" is getting in the way, and we will talk for the time being about a real subsistence wage. How is it to be divided? If this is done according to the customary administrative schemes (and such a danger does exist), when everything is decided at the level of the presidium or the departments of the Academy of Sciences, the money will actually sink into the sand.

It is far more democratic, I think, to specify the main purposes of the fund. Any academic institute, which conducts research that is important for the prospects of science and society, receives regular minimal budget financing.

Moreover, scientific programs of various levels: state programs, programs of the presidium of the Academy of Sciences, programs of its departments, are needed. Every institute on a competitive basis can obtain additional financing through them. Incidentally, it is time to reject megalomania in these programs and the senseless aspiration to be without fail "at the leading edge" in nearly all fields of science and to cling to this edge at the maximum strain of capabilities, which only a very wealthy country can venture. How was it in our country? If something does not work, they throw billions both here and into the mud hole. This is not nonsense!

And, finally, the third channel of financing. Any person has the right to submit a valid application and to receive money for scientific work. Of course, a highly skilled expert council, which will determine the value of the paid applications, is extremely necessary here. But in any case the democratic, competitive path of various capabilities is opening up for everyone. This, incidentally, will also save that category of theorists, about which we were speaking.

In the end the answer to your question: "What awaits us?" depends not only on the assets, which we will concentrate on the development of Russian science, but also on whether we will succeed in properly emancipating the intellect of scientists, in ensuring the real freedom of scientific creativity, and in protecting intellectual property against encroachments and ignorance, against political and economic dictation.

Osipov Sees Gradual Progress in RAN Reorganization

927A0111B Moscow NEZAVISIMAYA GAZETA
in Russian 21 Jan 92 p 6

[Article by Dmitriy Frolov under the rubric "Portrait": "The Hour of the Russian Academy of Sciences Has Not Yet Struck. The Revival of the Russian Academy for the Present Has Only Been Declared"]

[Text] The leadership of the revived national academy—the Russian Academy of Sciences (RAN)—on 15 January for the first time invited journalists to a press conference. Academy President Yuriy Osipov, contrary to custom, did not give even a short introductory speech, having let the representatives of the press have the first move. Perhaps, this signifies a new style which emphatically dissociates itself from rostrums and verbose reports. On the other hand, it is possible to regard this fact as a symptom of the loss of initiative owing to the lack of a program of actions of the new leadership, which it would make sense to make public. At any rate, Yuriy Osipov himself did not deny this.

"We are, after all, a government that has existed less than a month," he said in this regard to those who had gathered.

It appears that the situation, when the new administration first settles down in its chairs, and then begins to ponder and to form plans, is becoming a tradition of the Russian democrats, but it is difficult to call the situation that forms as a result, including at the academy, normal. At the conference of scientific personnel, which preceded the general meeting of the Russian Academy of Sciences, Guriy Marchuk, the last president of the union academy, stated that, in his opinion, the disintegration of the Union and the disappearance of the USSR Academy of Sciences also signify the disappearance of developed integrated basic science. This was probably said too strongly. However, even independent and unbiased observers note that the struggle of ideas, which becomes an academy, is being superseded more and more by the struggle of people, groups, and cliques.

"I cannot agree with this," the president of the Russian Academy of Sciences responded to the question of a NEZAVISIMAYA GAZETA correspondent about how much opinions of this sort correspond to reality. "The Russian Academy is the legal successor of the Academy of Sciences, its appearance is simply an organizational event," he stressed.

Responding to the question, how serious is the opposition of the academy elite—full members, corresponding members, and rank and file personnel of institutes—to the so-called scientific community, the president asked that the meaning of the word “opposition” be defined more precisely and cited the decree of the general meeting, which contains the demand “to devote particular attention to the further democratization of academic society.” Today this evasive wording was realized as the possibility of the attendance of representatives of institutes at this meeting with the right to vote.

As for the principles of financial and property interrelations, they are for the present, as is the custom to express oneself in the staff, at the stage of analysis. This is natural, inasmuch as the Russian Academy of Sciences is on month-to-month financing, which is leading it to a state that is close to lethargy. A large number of programs have been frozen, those of them, which involve foreign partners, are close to collapse, inasmuch as exchange is practically impossible. The lack of currency does not allow the revived successor to have the most elementary and necessary thing—to subscribe to foreign scientific periodicals, while the president, according to his words, cannot venture a business trip to the States at public expense. Perhaps, in the very immediate future the problem of financing will be solved in one way or another by the Ministry of Science. Its leadership, just as the academy leadership, is disposed to the establishment of a Basic Research Fund. In principle it is assumed that collectives, which do not belong to the Russian Academy of Sciences, will also be able to have access to these assets.

“I do not see anything bad in this,” Yuriy Osipov said. “A similar fund, before which everyone is equal, exists, for example, in the United States—this is fair. In the country there should be several scientific communities which are engaged in basic science.”

[Boxed item: Yuriy Osipov was born in 1936, was previously the director of the Institute of Mechanics and Mathematics of the Ural Department of the USSR Academy of Sciences, and is a specialist in applied areas of the above-mentioned disciplines, who worked, in particular, in the sphere of interests of the military-industrial complex. Moreover, he is well known as a person who has the opportunity to appeal to his high-ranking fellow countrymen—B. Yeltsin and G. Burbulis—without being confined to the framework of protocol.]

Russian Academy of Sciences: Few Changes Despite New Name

927A0111A Moscow MOSKOVSKIYE NOVOSTI
in Russian No 2, 12 Jan 92 p 17

[Article by Corresponding Member of the Russian Academy of Sciences Mikhail Volkenshteyn under the rubric “Science”: “The Ministry of All Sciences. What

Has Changed With the Change of the Name of the Union Academy to the Russian Academy?”]

[Text] The causes of the sad situation with science, to which we have now come, are obvious, and they are due by no means to the decline of the intellectual potential. It is a matter of the bad organization of scientific work and higher education. Universities are cut off from science, its pursuit is a privilege of research institutes of the USSR Academy of Sciences, now the Russian academy (incidentally, in fact it was also such earlier). This “ministry of science” always served the party type of government with trust and the truth. The result was foreordained, inasmuch as the powers that be did not understand at all what the essence of basic science is. I can cite the not so old (1987) statement of Slyunkov, secretary of the CPSU Central Committee and subsequently a member of the Politburo. He said that the Academy of Sciences should work on assignments of industry. But whereas the party was able to slow the development of the natural sciences, it completely destroyed the humanities. This is where functionaries began to romp—in the sphere of Russian philosophy and history, the sciences which traditionally had a high level. Real experts of philosophy and original thinkers (I am not talking about those exiled abroad), such as Losev and Asmus, remained excluded from the academy, other names: Pospelov, Ponomarev, and Ilichev, “shone” there.

Until the most recent years the “iron curtain,” which shut our country off from world civilization, to not small degree hindered creative contacts of our scientists with their foreign colleagues. It is no secret that only a few of the scientists traveled to the West, and these trips took place under the strict control of the KGB.

And just what has changed today? Has the “new” Russian Academy of Sciences relinquished its ministerial functions? By no means. Neither the temporary charter of the academy, which was recently adopted at its general meeting, nor the replacement of the presidium testifies to changes in the system of the academy, which are in any way significant. True, a new president was elected, but the presidium is practically the same.... The wishes of the scientific community at large were not taken into account—what kind of democratization is there here? As before the academy is closely connected with the military-industrial complex, hence a large number of abnormal phenomena—from an anti-democratic hierarchy to the active support of pseudoscience. You do not have to go far for examples: At the academy there is “the division of theoretical problems,” which is engaged in the study of extrasensory perception, telepathy, telekinesis, and clairvoyance. It was established for the benefit of the military-industrial complex and is supported by it.

The most serious condition of the humanities should be noted separately. Today no one is restricting the freedom of research, but inasmuch as humanities scholars, as a rule, cannot participate in commercial ventures, they

have simply been deprived of the opportunity to earn money—both in rubles and in currency.

You would not call the situation with the publication of scientific works, books, and journals anything but wretched. They are not, after all, commercially profitable. And although their unprofitability can be more than covered by the publication of classical fiction, the urge to pursue profits has seized publishing houses (including the Nauka Publishing House). Works with the most valuable research results are not being published, but then Nauka is publishing in a mass edition...an astrology handbook.

And the situation with foreign scientific literature in general is catastrophic. For the first time since 1992 the country has been deprived of foreign scientific information. Last year's subscription so far has not been paid for. In the new year not one issue of a scientific journal will be delivered from abroad to us—not to the Lenin Library, not to the library of the Academy of Sciences, not anywhere! It is a matter of more than modest currency outlays, but no one worried about them in good time. The curtain—now I do not know of what material, but probably a strong material—is again coming down.

Recently a group of people's deputies of Russia submitted for consideration by the Supreme Soviet the draft of a decree, which envisages the drawing up of a concept of the development of science and the corresponding draft laws, including questions of the management, coordination, and financing of research.

This is a step forward. However, no commissions will help, if serious efforts are not made on the part of scientific personnel themselves. They know better than others how basic science in leading countries is organized. It will not be possible in a visible time, of course, to change over to the American way—there scientific work is conducted mainly at universities. The German Max Planck Society, which unites tens of institutes, is closer to us. At these institutes there are no academicians (true, there are enough Nobel Prize laureates), they are completely independent, scientific councils made up of the best German and foreign scientists participate in their work. The activity of the society is directed by the senate, to which not only scientists, but also politicians, administrators, and representatives of industrial circles belong. The senate determines the financing (first of all state budget financing) and forms the scientific council of the society.

We are to decide what to borrow from this or other experience and what not to borrow. The main thing is to promote to the maximum degree the revival of great Russian science, the degradation of which, alas, is continuing.

'POISK' Interviews Top Science Officials

Osipov Interviewed

927A0122A Moscow POISK in Russian No 3 (141),
11-17 Jan 92 p 5

[Interview with Academician Yuriy Sergeyevich Osipov, president of the Russian Academy of Sciences, by Yelizaveta Ponarina under the rubric "A Topical Interview"; date and place not given: "Yuriy Osipov: 'The Academy Has Been Placed in a Humiliating Position'"—first two paragraphs are POISK introduction]

[Text] During the days of his election as president of the Russian Academy of Sciences Academician Yuriy Sergeyevich Osipov asked that he be given a month of rest from all kinds of interviews. "Do I have time for meetings with journalists, when the academy is on fire?"

The month has nearly passed, but an opening in the agenda of the head of the Russian Academy of Sciences is not evident. Therefore, the first question.

[Ponarina] In what condition did you find the Academy of Sciences? How is it existing during these stressful days?

[Osipov] It is barely existing, I would say. The condition is extremely serious due to the financial collapse. In ruble terms the academy will receive the old wage-91, which will (!) be multiplied by 1.9. Thus far this has not happened. Using our minimal resources, for the time being we have supported people, but further.... Further, if wages remain at such a level, we will lose the regular personnel of the academy.

[Ponarina] Is a big "brain drain" occurring?

[Osipov] In overt form it is not more than 1 percent a year. But there is also a latent, purely "scoop-like" drain, as they now call it. This is when a person is registered at a scientific research institute, but for his meager wage does not wish even to pretend that he is working. Or he fulfills on the equipment of his firm assignments of outside organizations.

[Ponarina] Is this that terrible? He is all the same making something real: materials, software products, and is realizing what was made long ago. It is better than nothing....

[Osipov] We are talking, after all, about an academy which for 200 years existed for the sake of research in basic science. But now the spirit and mood at it are changing.... People are leaving for commercial structures, from which they will not return. But the main thing is that there is no influx of young people, the prestige of a researcher has been lost. This is not their fault, this is their misfortune. While those who still remain are trying to get contracts abroad.

[Ponarina] Aeroflot, it appears, dealt radically with this problem, having rid the intelligentsia of the desire to change places and the thirst for contact....

[Osipov] Yes, the increase of the cost of international airline tickets turned out to be not simply unlimited, as it is with any monopolist, but absurd. What is the sense of flying for this money on our airplanes, when it is possible to convert rubles at the "black market" exchange rate into currency and to avail oneself of the services of other airlines, where both the service and the operating efficiency are incomparably high?

But these are emotions. The facts testify: If everything is left that way, the problem of transportation will become insoluble for the academy. I believe: Even the president cannot afford to pay 200,000 rubles for a ticket. We have been forced to abandon even official business trips that are connected with the signing of some agreements or others between academies of sciences.

[Ponarina] But what if you really pay with currency?

[Osipov] There is not a single dollar in the cash register. Our ministry for the time being is not providing money (it also no longer has it), while no one has forgotten the old debts. They are enormous—on the order of 15 million marks to German publishing houses alone.

[Ponarina] Besides disgrace, what does this mean?

[Osipov] Intellectual isolation, the lack of information. After all, until we repay the debt, we will not receive the latest scientific literature. The "iron curtain" will fall of its own accord and will again deprive us of the opportunity to understand the world and our place in it.

[Ponarina] On what are you counting? That it will be possible to obtain a budget by begging?

[Osipov] On intelligent decisions of the government. I have no doubt that both the president and the Supreme Soviet of Russia understand the situation. But the financing of science in the form, in which it was carried out last year—by the month—is intolerable. After all, for the Academy of Sciences money is not only the wage, but also the support of major strategic initiatives and the continuation of programs. For example, space. Without intellectual and engineering replenishment even Baykonur is merely a pile of metal. Especially as the further progress of research in this area is impossible without allocations. This problem is so urgent that literally any day now it will be discussed with the participation of the president of Russia.

[Ponarina] That is, will everything reduce again to one note—help, do not let us vanish? But how much time they have been talking about the Basic Research Fund. Now they say that it already exists, more precisely, existed, and the USSR Academy of Sciences took 70 percent of the money from it. Now they assure us that it will appear any minute. Now they dismiss it: It neither existed nor exists....

[Osipov] Most likely, the last one. The Basic Research Fund thus far has not been established. There are variant readings in the intensity of its "pumping" by the state. The Ministry of Science, the Higher School, and Technical Policy believes that this fund at first should be small. There are, they say, some additional assets for the support of talented people—for grants, competitions.... But I believe: It is necessary to establish it immediately as a substantial one, by using the possibilities of preferential taxation for those who will invest their assets there, up to private individuals. And everyone: both academic and VUZ scientists and sectorial scientists, if they will engage in basic operations, should be equal before this Basic Research Fund. But it is necessary to establish it legislatively and to support and stimulate the sponsorship of progress in every way. Throughout the world this has been accepted for a long time, and firms spend considerable money if only to obtain the great reputation of patrons of science.

[Ponarina] Has the wave of privatization reached the academy? Do you remember the angry accusations that 300 academicians own all the property of the Academy of Sciences?

[Osipov] The wave has reached it. But it arose not within the academic community. And not on the part of the government: All the same in accordance with the decree of the Supreme Soviet the Russian Academy of Sciences is federal property which is not liable to privatization. However, they are continually trying to take something from the academy. In particular, to take away the hotel.

[Ponarina] Is this the old incident that happened in Pushchino?

[Osipov] None other! It is this one, the only one—on October Square. Well, how is this possible, when it is used for the purposes of noncurrency international scientific exchange? If you take it away, we will not be able to accept foreign colleagues in our country, the last ties with the world will be broken. This noncurrency exchange is as it is a kind of humanitarian aid of the civilized countries to the science of Russia.

Shorin Interviewed

927A0122B Moscow POISK in Russian No 3 (141),
11-17 Jan 92 p 5

[Interview with Academician of the Russian Academy of Sciences Vladimir Shorin, chairman of the Committee for Science and Public Education of the Supreme Soviet of Russia, by Yelizaveta Ponarina under the rubric "A Topical Interview"; date not given: "Vladimir Shorin: 'It Is Necessary To Fight for Science'..."—first paragraph is POISK introduction]

[Text] I, as a whole, did not conceal the reason for my late, nearly night-time call to Samara, where Academician of the RAN [Russian Academy of Sciences] Vladimir Shorin, chairman of the Committee for Science and Public Education of the Supreme Soviet of Russia,

had escaped to his family for a few days—the conversation with the president of the Russian Academy of Sciences had plunged me into despair. The impression had been created that basic science had been driven by the domestic lack of money and departmental unlimitedness into such a bog, from which it will not escape....

[Shorin] I am more optimistic, Academician of the RAN Vladimir Shorin stated with the first sentence. In spite of the fact that we have not examined the budget, there is already a decision of the Supreme Soviet of Russia: To maintain the financing of science at the level of last year in comparable prices.

[Ponarina] Who today will take the risk to define this comparability?

[Shorin] The government. All the talk is about how substantial it will be in this case. The task in itself is practicable. The possibilities of forecast analysis exist. But, of course, one will not manage without difficulties. Those people, for whom the budget does not tally, will play on the comparability. We have already become aware of this from teachers. But the Supreme Soviet has pronounced its verdict, and its should correct the situation.

[Ponarina] How will this budget be allocated, will it really be again by the month?

[Shorin] This question also disturbs me most of all. The question of the stability of financing for science is one of the main ones. When on 13 January we discussed in the committee the draft of the budget, we saw: There is a complete lack of guarantees here that if only the quarter or six months will be financed. But a year is better. While the monthly payment of the sums, and with a delay, is like alms. It makes it possible only to pay wages, but does not make it possible to plan research and the fulfillment of scientific programs. This is not life and not development, this is survival....

And when discussing the budget in the Supreme Soviet, sometime between the 20th and 29th of the month, we will have to fight for this. On Monday in our committee we will again study the budget, the statements, and the projections of the items of expenditure, which were submitted by Ministers Boris Saltykov and Eduard Dneprov. It is necessary to formulate a precise stand, the committee's own line of conduct in the Supreme Soviet of Russia.

[Ponarina] Is the committee planning the defense of science in connection with the monopoly jacking up of prices by Aeroflot?

[Shorin] Of course. Not only Aeroflot is here. In general it is now necessary to fight for science. This is a thin cultural stratum, which has been building up for centuries, but is being destroyed.... Later, when you notice the absence.... It is possible to assemble very many musicians. And even good ones. But the result will not be an orchestra. And if we break up scientific collectives, if

these orchestras and quartets scatter, we will then not put them together for a long time. That is why the consequences of the Aeroflot robberies and the fact that there is no currency for the purchase of books and foreign journals can be so terrible and so serious. That there are no guarantees for the conducting of joint scientific programs—not only the internal union scientific space is being destroyed, international ties are being broken.... It is impossible to tolerate this and to wait until it come apart of its own accord. If one does nothing, everything will only disintegrate of its own accord.

[Ponarina] To do—is this to ask some people for concessions and to beg currency of others?

[Shorin] The easiest way, of course, is to ask. But it is also necessary to offer something. Therefore, we have now also begun to study the budget and are trying to find nonbudgetary assets. Before leaving I met with the chairman of the British Council, which supervises science and education. There were also talks about possible assistance on the part of the Great Britain in the preservation and support of our scientific programs.... Here I have a clear-cut position: For the support of science all means are good.

[Ponarina] In the Ukase on the organization of the Russian Academy of Sciences the government was given the assignments to develop and specify the benefits which would help the academy to survive this difficult period. What has been done here?

[Shorin] Not everything. There are serious questions regarding the legal status of the academy and regarding the transfer of land to it. They have still not been adequately studied in connection with the provisions of the Law on Land, the Law on Taxes.... This is our, the legislators', problem. For the present, unfortunately, things are not completely clear here.

[Ponarina] When will it, this clarity, set in?

[Shorin] In a month or two, I think.

CIS Academies of Sciences Presidents Meet

927A0085A Moscow PRAVDA in Russian 30 Dec 91 p 1

[Article: "The Council of Presidents"]

[Text] The regular meeting of the council of presidents of the academies of sciences of the independent states—the former union republics—was held the other day at the Russian Academy of Sciences. With the exception of the representative of the Academy of Sciences of the Republic of Moldova all the presidents of the academies of sciences of the independent states, including the Baltic republics, participated in the work of the council. By common consent Academician G.I. Marchuk will be in charge of the work of the council of presidents.

At the meeting of the council it was announced that the Russian Academy of Sciences in its updated composition is becoming a party to the agreement on the formation of

the council of presidents of the academies of sciences, which was signed on 20 September 1990. The decisions of the council will be of a recommendatory nature and will take effect after their examination by the presidiums of the academies of sciences of the independent states.

In the opinion of the meeting participants, the activity of the council of presidents is of exceptionally great importance, inasmuch as it is assuming the role of the highest consultative and coordinating body for questions of the development of basic science and for the elaboration of recommendations on the adaptation of the potential of academic science to the conditions of the market economy.

The agreement on scientific and scientific and technical cooperation, which was signed the other day by the representatives of the independent states, creates good prerequisites for the solution of an entire set of problems that are connected with the preservation of the potential of basic science of the former USSR, and the council of presidents of the academies of sciences intends to contribute in every possible way to its implementation.

CIS Members Sign Agreement on S&T Cooperation

927A0085B Moscow *ROSSIYSKAYA GAZETA*
in Russian 28 Dec 91 p 2

[Article (TASS): "For Five Years Science Will Be Outside Politics"]

[Text] An agreement on interstate scientific and technical cooperation and a temporary agreement on the protection of industrial property are being drawn up at the Zaslavl residence near Minsk at the interstate meeting of government delegations and experts of the independent states, which belong to the Commonwealth of Independent States. Delegations of Armenia, Belarus, Moldova, Russia, Tajikistan, and Ukraine, which have the right to sign, as well as representatives of Azerbaijan and Kazakhstan are participating in the work of the conference.

Scientist Interview Reveals Polarization of RAN

927A0120A Moscow *POISK* in Russian No 52 (138),
20-26 Dec 91 p 4

[Interview with Doctor of Physical Mathematical Sciences Anatoliy Shabad, People's Deputy of Russia, by *POISK* special correspondent Vladimir Shlemin under the rubric "Point of View"; date and place not given: "The Passions Over the Ukase"—first three paragraphs are *POISK* introduction]

[Text] "Blackmail!"—that is how they are qualifying today in academic circles the statement at the general meeting of the RAN [Russian Academy of Sciences] of Doctor of Physical Mathematical Sciences and People's Deputy of Russia Anatoliy Shabad. Indeed, it differed by its bluntness from the speeches of many people. Neither

more nor less he warned those who had gathered that in case of the slowdown of the restructuring of the academy the Supreme Soviet of Russia may deny it the right of ownership.

What forced the scientist to openly confront the scientific community?

A *POISK* special correspondent talks about this with Anatoliy Shabad.

[Shlemin] The joint general meeting of the Russian Academy of Sciences, in the opinion of a number of commentators, became an important link in the preservation of basic science of the country. As far as I understand, you do not fully accept such a point of view.

[Shabad] The general meeting, it need be said, made a most painful impression on me. I got the feeling that the people speaking at it were in some other dimension, in a space without time. As if beyond the walls of the academy perestroika had not begun, the putsch had not died away, and they had not eliminated the CPSU. As if nothing had changed.

The fear, the nonacceptance of changes is reaching the point of paradoxes. Today at the academy the popular term "ochlocracy" has emerged. It is used to describe the aspiration of the scientific community to take part in the solution of the problems that are connected with its own life. More simply speaking, now they are calling the participation of doctors and candidates of sciences in the management of the academy "ochlocracy." The same intellectual force, on which the prestige and might of a civilized state are based.

Suppose they forgive me for such bluntness, but is it not worth in such a case calling the activity of the academy community "ochlocracy"? After all, quite a number of its members are very loosely connected with science. They were elected to the ranks of the Academy of Sciences, as is known, in accordance with lists approved by the CPSU Central Committee or through the influence of associates of Academician T. Lysenko himself.

The saddest thing here is the fact that the prominent, talented leaders of our science, by yielding to some corporative feeling, rank with such "colleagues" and make decisions that were cherished by them. And then one hears the laments that, they say, the participation of doctors of sciences in the discussion of the problems of the life of the Academy of Sciences will lead without fail to the decrease of the level of qualification of decisions, that, they say, science is not politics, in which a majority of votes is sufficient for the ascertaining of the truth.

It is a pity that, while declaring such positions, the academic community is repudiating its expert capabilities. It would be sufficient to enlist for the discussion of this problem a political scientist or historian, who is literate in the slightest degree: He would explain that democracy in politics also did not emerge overnight.

Restrictions also existed here: first the property qualification, then the educational qualification. And only time showed that all this is not needed, that the system works regardless of all restrictions.

I can cite as proof the following incident. Once a discussion of the procedure of selecting the director took place at one well-known institute. An academician was the first to speak: The director, he said, should be appointed by the department. It is clear that this academician was a member of the department. Then a corresponding member spoke and proposed to turn the question of selection over to the scientific council of the institute. As a member of the scientific council, he said, he is prepared to assure the qualified nature and objectivity of the discussion. A scientific associate also spoke. Only the decision of the meeting of the collective suited him—not a member of the department and the scientific council. True, the meeting of not all the personnel of the institute, but only those who consider themselves scientists. And only after this did the next speaker speak. It is necessary, he said, to elect the director at the meeting of the entire collective, with the participation of cleaning women, drivers, engineers, and technicians. Prosperity and the standard of living of everyone at the institute depend on the director.

[Shlemin] I can guess: This was one of the maintenance personnel and....

[Shabad] No. This was a member of the scientific council, the bureau of the department, and the presidium of the Academy of Sciences, Academician Andrey Sakharov.

What is most typical, although at that time he was in the minority, practice proved that he was right. The results of the preliminary vote of scientists of the institute coincided exactly—in percent—with the results of the vote at the general meeting of all the associates of the institute.

I am relating this because real authority in science is conspicuous and is accepted by everyone without exception. So that in general it would not be worthwhile for us to be afraid of ochlocracy on the part of scientists in the solution of the problems of the Academy of Sciences. And it is absolutely shameful to threaten the scientific community with politics. Politics is not a bugbear and not an end in itself. This, in principle, is one of the spheres of life of society.

[Shlemin] However, might it be that precisely the fact that the academy lives in some isolation from the outside world and politics is also helping it to survive?

[Shabad] Certainly, some conservatism of the academy is necessary. But it is a question of something completely different. Every person has the right, which no one can contest, to make independent decisions. And in particular this right has been given to people of creative labor,

to scientists. After all, the pursuit of science, perhaps, after art is the most democratized sphere of human activity.

But in what concerns science, especially academic science, we are not advocates of surgical operations. One must not invade the body with a scalpel without knowing what to cut and where to cut. Just as an instrument, which is capable of separating a cancerous tumor from living tissue, has not been developed, so in our situation it is impossible to divide academicians according to the principle "bad"—"good" or "ours"—"not ours." This is not necessary and is dangerous. As always in such situations, most likely those people, who are not to blame for anything, will suffer. That is why we wish only to dilute this community with fresh, healthy forces. And then only in the area of administration. Even without touching upon the election of members of the academy.

[Shlemin] From this standpoint, perhaps, it is possible to rate only favorably the recently held election to the RAN. After all, in it doctors of sciences elected doctors of sciences members of the academy.

[Shabad] By no means. The incident with the RAN—I mean its initial membership—is precisely an example of the intolerable interference of state organs in the affairs of science. From an ethical standpoint, the establishment of such an academy is a complete disgrace.

You will agree that the situation, when the executives of a state organ are nominated, and then elected as members of the academy, which was established in accordance with a decision of this organ, seems unprecedented. And I am certain that the results of this election will affect the fate of the Academy of Sciences not in the best way.

[Shlemin] You spoke rather bluntly about the RAN. However, an ukase of the president of Russia has appeared, the Temporary Charter of the RAN has been adopted....

[Shabad] Let us not jump to conclusions. There are still enough questions here. First of all we should examine in detail the problem of the ukase.

As is known, the Congress of People's Deputies of Russia gave the president the right to make decisions that are at variance with laws of the RSFSR, but to draw them up as drafts of ukases and to submit them for discussion by the Supreme Soviet. Only if they are not protested do the drafts assume the force of an ukase of the president.

Ukase No. 228 on the establishment of the Russian Academy of Sciences was promulgated in violation of this statute. We will not discuss some of its blemishes. It is a matter of fundamental issues.

For example, the problem of the ownership of the academy. As is known, all the property, buildings, and assets have been transferred to the ownership of the

Academy of Sciences of Russia. But what kind of ownership? Collective ownership? The ownership of the members of the community—institutes?

Such interpretations are impossible. For they afford the broadest freedom for wild, spontaneous privatization. I am far from thinking that my colleagues are prepared to abandon science for the sake of receiving unearned money, for example, from the leasing of premises. But who will guarantee that such a thought will no occur to people tomorrow, when the most terrible economic crisis will force them to choose between a job and the provision of the elementary minimum for subsistence for themselves, their kith and kin?

Undoubtedly, it is a matter in the ukase of corporate property—that is, such a form of it, given which a member of the corporate association can fully dispose of the property. A person who has been invested with such a right by a decision of the collective body of administration. Any deviation from actions within this framework leads to the elimination of the right to dispose of the property. That is, use what you need, but only as the community has decided.

However, there is no law on corporate property in Russia. In addition, there is also no charter of the RAN, which would confirm that the academy is assuming the duty to manage the property precisely in accordance with such a law. And, what is no less important, the president has not been given the right to denationalize property.

That is, the ukase of the president proved not to be supported from the legal standpoint. Thus, in the immediate future the legitimacy of the ukase of the president of Russia will be discussed in the Supreme Soviet.

In principle, the matter has been significantly complicated by the fact that the ukase has taken effect and either the congress or the Constitutional Court can repeal it. However, we hope that if the Supreme Soviet of Russia addresses to the president the request to correct the ukase, Yeltsin will agree to this.

True, events, perhaps, will take a different turn: The parliament will not assume the burden of investigating the actions of the president. In such a case, I think, we will exercise our right of deputies and will address to the Constitutional Court of Russia the request to examine the formed situation.

In my opinion, the transfer of property to the academy is a mistaken step. In principle, this is, to use the old expression, national property. And, therefore, the status of "federal property" should be given to it. This, incidentally, will save it from any attempts at privatization.

[Shlemin] But in such a case state organs will obtain an additional lever of influence on the academy, the principle of the self-administration of the Russian Academy of Sciences may become an illusion.

[Shabad] But are you sure that it has actually been realized? After all, now in reality only the academic community itself: academicians and corresponding members, is self-administrating. Although the representatives of institutes received the right to vote at the general meeting—which in itself is an appreciable feat—they did not receive the real right to make decisions and to influence the course of the discussion.

And who are they, the representatives of institutes? Do they represent the interests of the scientific community? Or of the scientific councils, by which they are elected? Direct elections, after all, are not provided for by the Temporary Charter.

Incidentally, there is also an even more powerful lever in the hands of the state—financing. It would be worthwhile for a self-sufficient organization to fear pressure. For it the question of property is basic. The academy, which lives at the expense of the state, is tied to it as it is by thousands of threads. A structure, in which the owner lives on a state subsidy, economically is absolutely unnatural.

The most distressing thing is that the members of the academy do not want to accept today's situation in its real form. When a ship is thrown onto the reefs, it is naive to think that rescue depends merely on how authority on the ship is assigned. And that is why the scientific community should be granted the parity right to participate in the solution of the problems of the administration of the academy, as was established by the Conference of Scientific Personnel of the Academy of Sciences. After all, if one does not worry about authority, a catastrophe is inevitable. Parity participation is not an extreme solution, but a reflection of the real balance of forces. And the disturbance of this balance will lead to the disintegration of the Academy of Sciences.

[Shlemin] In conclusion one more question. Can the question of halting the financing of the Academy of Sciences actually arise in the Supreme Soviet?

[Shabad] The deputies who are scientists would not pose the question that way. This is ambiguous. But if the confrontation and trouble continue, the academy, undoubtedly, will attract the attention of the public at large. And since in society anti-intellectual sentiments have been growing in recent times, forces, which we cannot control, may come to stage front. The impression that at the Academy of Sciences only the division of academic vacancies is taking place during so complicated and dangerous a period for the country, may prevail over everything else. And it is difficult to predict what decision the parliament will make in this situation.

Text of Temporary Charter of Russian Academy of Sciences

927A0123A Moscow POISK in Russian No 52 (138),
20-26 Dec 91 pp 3, 4

[Temporary Charter of the Russian Academy of Sciences, approved by the General Meeting of the Russian Academy of Sciences on 18 December 1991 for a period of one year]

[Text] I. General Provisions

1. The Russian Academy of Sciences (RAN) is an all-Russian self-administered organization. In its activity it is guided by Russian legislation and its own charter, which is approved by the general meeting of the academy.

The Russian Academy of Sciences unites the members of the RAN—full members and corresponding members, who are elected by the general meeting of the academy, and the scientific associates of the institutions of the academy.

2. The basic tasks of the Russian Academy of Sciences are:

- the conducting of basic research in the area of the natural sciences, the technical sciences, the humanities, and the social sciences, which contributes to the economic, social, and spiritual development of society;
- the utmost promotion of the development of science in Russia;
- the development of research which contributes to the preservation of national cultures and the harmonization of interethnic relations;
- the conducting of applied operations in the interests of Russia and its national formations and regions;
- the assurance of the integration of academic, VUZ, and sectorial science of Russia for the purpose of the utmost development and effective strengthening of cooperation between science, education, and culture and the implementation on the territory of Russia of a unified science and technology policy;
- the training of scientific personnel of the highest skill;
- participation in the formulation of state decisions on questions of scientific and technical progress and in the elaboration of the scientific substantiation of the strategy of the social development of Russia and the republics, krays, and oblasts, which are a part of it;
- participation in the examination of major scientific and economic projects and in the elaboration of programs of the improvement of the environment;
- the promotion of the formation and development of science-intensive sectors of the economy of Russia;
- the promotion of the formation of the conditions for the revelation of the creative potential of all scientists of Russia on the basis of democratic forms of competition and rivalry, which eliminate the possibility of monopolization in science;
- the identification and support of talented researchers, the promotion of the creative development of young people;

—the increase of the prestige of knowledge and science, the status and social protection of scientific personnel.

3. The Russian Academy of Sciences carries out the coordination and general scientific supervision of basic research on the most important problems of the natural sciences, the technical sciences, the humanities, and the social sciences, which is being conducted by scientific institutions and higher educational institutions of Russia, which are financed from the state budget.

4. For the accomplishment of its tasks the Russian Academy of Sciences:

- specifies the basic directions of basic research in the natural, technical, and social sciences and the humanities;
- singles out the directions of basic research, with respect to which the combining of the efforts of academic, VUZ, and sectorial scientific subdivisions can ensure the rapid achievement of fundamentally new results in the area of science, engineering, and technology, forms temporary interdepartmental collectives of researchers, and allocates the necessary resources for the performance of work;
- participates jointly with higher educational institutions of Russia in the establishment of scientific educational complexes on the basis of institutes of the RAN;
- identifies and supports (in particular, through a system of grants) scientific collectives and individual researchers, who have proven themselves by great work efficiency;
- announces and holds competitions for the solution of scientific problems, which are important for the economy of Russia, and in necessary instances forms the corresponding special-purpose collectives of researchers;
- formulates together with state organs recommendations on the efficient use of scientific and technical achievements in the economic and social development of Russia;
- prepares for the highest state organs of Russia proposals on the development of the material and social base and the increase of the level of the personnel potential of academic, VUZ, and sectorial science of Russia;
- participates in the elaboration of the strategy and tactics of nature conservation policy on the territory of Russia;
- participates together with the Academies of Sciences of the other independent states in the organization of interstate academic structures, promotes interstate scientific and technical cooperation;

- promotes the development of extensive international cooperation of scientists of Russia by the conclusion of agreements with research organizations of other countries and the establishment in Russia of international research centers, holds international congresses, conferences, and seminars;
- promotes the development on the territory of Russia of scientific information networks;
- convenes scientific sessions, conferences, and meetings for the discussion of scientific and applied problems, questions of the coordination of scientific research and design work, problems of the development of productive forces, culture, and nature conservation activity on the territory of Russia;
- publishes scientific journals and works of scientific institutions, in which the results of scientific research, which is being conducted at the RAN and other scientific institutions, are published, covers in these or special publications the activity of the RAN, the problems of scientific and technical progress and the cultural development of Russia;
- aids the promotion and spreading of scientific knowledge;
- awards medals and prizes, including medals and prizes named after prominent scientists, for outstanding scientific and technical scientific achievements.

5. The Russian Academy of Sciences is organized according to the field-of-science and territorial principles. It has within it departments for areas and directions of science (departments), regional departments, and regional centers. (Appendix 1.) The members of the Russian Academy of Sciences, who are united by the regional departments, simultaneously belong to the departments in their specialty.

6. The Russian Academy of Sciences has scientific centers, scientific research institutes, laboratories, observatories, stations, botanical gardens, libraries, publishing houses, archives, museums, scientific research expeditions, and other scientific and auxiliary scientific institutions, enterprises, and organizations.

Scientific societies, scientific councils, committees, and commissions, which are organized in accordance with the procedure that is established by the presidium of the RAN, are attached to the Russian Academy of Sciences.

The Russian Academy of Sciences participates in accordance with agreements with foreign scientific institutions in the establishment of international scientific institutions and organizations and joins international organizations.

7. For the support of the scientific activity of the Russian Academy of Sciences, its institutions, organizations, and

enterprises the Academy of Sciences has buildings, structures, equipment, instruments, vehicles, means of communication, and other property, as well as property that ensures the meeting of the social needs of the personnel of the academy (housing, polyclinics, hospitals, sanatoriums, vacation homes, holiday hotels, hotels, and others).

All questions of the ownership, use, and disposal of the property of the Russian Academy of Sciences are governed by prevailing legislation and the Statute on the Legal Regime of the Property of the RAN, which is approved by the general meeting of the RAN.

8. Assets of the state budget of Russia are the basic source of financing of the activity of the Russian Academy of Sciences.

Assets from state basic research funds, public and private funds, as well as assets, which are obtained from agreements, arrangements, and contracts with interested clients of Russia and other states, can serve as additional sources of financing.

9. The Russian Academy of Sciences has the rights of a legal entity.

II. The Members of the Russian Academy of Sciences and Foreign Members of the Russian Academy of Sciences

10. Scientists, who have enriched science with works of paramount scientific importance, are elected full members of the Russian Academy of Sciences.

Scientists, who have enriched science with outstanding scientific works, are elected corresponding members of the Russian Academy of Sciences.

The members of the RAN are elected for life.

11. The total number of full members and corresponding members of the Russian Academy of Sciences is determined by the general meeting of the RAN.

12. The Russian Academy of Sciences can elect foreign members of the RAN. The rights of foreign members are determined by the general meeting of the RAN.

13. Elections to the Russian Academy of Sciences are held in accordance with this charter and the Statute on Elections, which is approved by the general meeting of the RAN.

III. The Procedure of the Election of Members of the Russian Academy of Sciences

14. Elections of full members and corresponding members of the RAN are held no less often than once every three years.

The time of the holding of elections, the name of the specialties, and the number of vacancies in each specialty are established by the presidium of the RAN with allowance made for the representations of the departments and regional departments.

15. The announcement of the presidium of the RAN on the holding of an election is published in the central press no later than four months prior to the holding of the election.

The right to nominate candidates for full members and corresponding members of the Russian Academy of Sciences is granted to members of the RAN, scientific institutions, higher educational institutions, and scientific councils. The nomination of candidates by institutions and organizations is carried out at meetings of the academic and scientific and technical councils, collegiums, or presidiums by secret ballot by a simple majority of votes.

The names of the candidates for full members and corresponding members of the RAN with the appropriate justification are reported in writing to the Russian Academy of Sciences within 45 days from the day of the publication of the election announcement. The names of the nominated and registered candidates are published no later than two months prior to the election. The election results are published in the central press.

16. The election of full members and corresponding members of the Russian Academy of Sciences is conducted by the general meeting of the RAN from among the candidates who were elected by the general meetings of the departments.

17. During the election of candidates for full members of the RAN at the general meeting of the department the full members of the RAN, who belong to this department, have the right to vote.

During the election of candidates for corresponding members of the RAN at the general meeting of the department the full members and corresponding members of the RAN, who belong to this department, have the right to vote.

18. In the absence of individual members of the department for valid reasons the list of full members and the general list of members of the RAN, who are participating in the general meeting of the department, are made more precise before the meeting, and in accordance with these results the bureau of the department approves the corresponding lists for voting.

The general meeting of the department is authorized to conduct the election of candidates for full members of the RAN provided that the former of these lists for voting contains not less than three-fourths of the number of full members of the RAN for this department, and the election of corresponding members of the RAN provided that the latter of these lists for voting contains not less than three-fourths of the total number of members of the RAN for this department.

19. The elections of candidates for full members and corresponding members of the RAN are conducted at the general meetings of the departments by secret ballot.

The number of candidates for full members and corresponding members of the RAN, who have been elected by the general meeting of the department, should not exceed the number of corresponding vacancies for this department.

The persons, who received the largest number of votes, but not less than two-thirds of the votes of the full members of the RAN for the given department, who were included on the list for voting, are considered to be elected as candidates for full members of the RAN.

The persons, who received the largest number of votes, but not less than two-thirds of the votes of the members of the RAN for the given department, who were included on the list for voting, are considered to be elected as candidates for corresponding members of the RAN.

20. At the general meeting of the Russian Academy of Sciences full members of the RAN have the right to vote during the election of full members of the RAN, while full members and corresponding members of the RAN have the right to vote during the election of corresponding members of the RAN.

The quorum and voting procedure remain the same as during the elections of candidates for full members and corresponding members of the RAN at the general meetings of the departments. The lists for voting are approved by a special decree of the presidium of the RAN.

21. The election of foreign members of the Russian Academy of Sciences to vacancies, which have been opened by the presidium of the RAN, is conducted in accordance with the procedure that is stipulated for the election of corresponding members of the RAN.

IV. The Duties and Rights of Members of the Russian Academy of Sciences

22. The main duty of members of the Russian Academy of Sciences is to enrich science with new achievements, to organize the collective elaboration of the most important scientific problems, and to take an active personal part in it.

23. Each member of the Russian Academy of Sciences is a member of one of the departments of the RAN. Full members and corresponding members of the RAN can transfer to another department in case of the consent of two-thirds of the number of its members who have been included on the corresponding list for voting.

The members of the RAN, who belong to one department, can with the consent of the majority of members of another department, which has been expressed by secret ballot, take part in its work and enjoy all the rights of a member of this department, with the exception of the right to vote during the election of candidates for members of the RAN, the academician secretary, and the bureau of the department.

24. The members of the Russian Academy of Sciences have the right to submit for consideration by the presidium of the RAN and the bureau of the department, to which they belong, scientific and scientific organizational questions, as well as to submit these questions through the presidium of the RAN and the bureau of the department for discussion by the general meeting of the RAN and the general meeting of the department.

V. The General Meeting of the Russian Academy of Sciences

25. The general meeting of the RAN, which consists of the full members and corresponding members of the RAN, as well as scientific associates, who have been sent as delegates for a term of one to five years by the scientific institutions of the RAN in accordance with the quotas established for them, is the highest body of the Russian Academy of Sciences.

The scientific associates, who have been sent as delegates by the scientific institutions of the RAN to the general meeting of the RAN, are elected by the academic councils of these institutions by secret ballot.

(The question of the quotas of representation of the institutions of the RAN at the general meeting of the RAN should be settled in the charter of the RAN, the draft of which will be submitted for approval by the general meeting of the RAN in December 1992.

(The quotas during 1991 are specified in the decision of the general meeting of the RAN "On the Temporary Charter of the Russian Academy of Sciences" of 18 December 1991.)

26. The general meeting of the RAN approves the summary reports of the presidium of the RAN; approves the annual report on the fulfillment of the plan of the base budget financing of the academy and determines the directions and the priorities of the formulation of the plan for the next fiscal year; hears the reports of the departments, regional departments, and regional scientific centers, the institutions of the RAN, and individual scientists; discusses scientific and scientific organizational problems; elects the full members and corresponding members of the RAN, foreign members, and the presidium of the RAN.

27. The general meeting of the Russian Academy of Sciences is convened as needed, but not less often than twice a year. The annual general meeting of the RAN is held during the first 10 days of March.

Questions for discussion at the general meeting of the RAN can be submitted through the presidium of the RAN by members of the general meeting, by decisions of the scientific institutions and departments of the RAN and conferences of the scientific associates of the RAN.

28. At the general meeting all its members enjoy the right to vote (with the exception of the instances that are stipulated by points 20 and 21 of this charter).

29. The general meeting is authorized to make decisions, provided that a simple majority of the members of the meeting are present at it; decisions are made by a majority of votes (with the exception of the instances that are stipulated by points 20 and 21 of this charter).

All personnel issues are settled by the general meeting of the RAN by secret ballot.

VI. The Presidium of the Russian Academy of Sciences

30. The presidium of the Russian Academy of Sciences is made up of the president, vice presidents, and chief scientific secretary of the RAN, the academician secretaries of the departments, the chairmen of the regional departments, and the members of the presidium. The number of vice presidents and members of the presidium is determined by the general meeting of the RAN.

The president, vice presidents, and chief scientific secretary of the RAN are elected by the general meeting of the academy from among the full members of the RAN.

The academician secretaries of the departments and the chairmen of the regional departments are elected by the general meetings of the corresponding departments. The academician secretaries of the departments are approved as members of the presidium by the general meeting of the RAN. The chairmen of the Far Eastern, Siberian, and Ural Regional Departments and the chairman of the St. Petersburg Scientific Center of the academy are approved by the general meeting of the RAN as vice presidents of the RAN.

The members of the presidium are elected by the general meeting of the RAN from among the members of the general meeting of the RAN. The formation of the entire membership of the presidium is carried out simultaneously, for a term of five years. For election to the presidium it is necessary to receive a majority of votes of the members of the general meeting of the RAN, who took part in the voting.

The distribution of duties among the president, vice presidents, chief scientific secretary, and other members of the presidium is established by the presidium of the RAN.

When standing for reelection the presidium submits to the general meeting of the RAN a report on its activity during the past five-year period.

31. The presidium carries out the decisions of the general meeting of the RAN and during the period between sessions of the general meeting supervises all the activity of the academy.

In all its activity the presidium is accountable to the general meeting of the academy. The presidium reports to the general meeting on the most important decisions that were made by it during the period between sessions of the general meeting.

The general meeting of the RAN can dismiss ahead of time the entire membership of the presidium of the RAN (or individual members of it) and hold the election of a new membership of the presidium (elect new members in place of those who left) for the remaining term until the next election of the presidium. The decision on the early dismissal of members of the presidium is made by a two-thirds majority of those present at the general meeting.

32. The presidium of the Russian Academy of Sciences:

- convenes the sessions of the general meeting of the RAN;
- on the representation of the corresponding departments establishes scientific research and auxiliary scientific institutions and enterprises, which are necessary for the fulfillment by the academy of its tasks; approves the statutes on these institutions and enterprises; specifies the direction of the work and the specialization of scientific research institutions of the RAN, which are being newly established;
- on the representation of the corresponding departments makes the decision on the change of the specialization or the elimination of scientific research and auxiliary scientific institutions and enterprises;
- organizes scientific councils for the most important complex problems of basic research, as well as committees and commissions;
- takes the necessary steps for the use of the results of scientific research work for the purposes of the economic and social development of Russia;
- advances the legislative initiative on the drafting of laws on science and state acts that concern state science and technology policy;
- convenes scientific congresses, conferences, and meetings, organizes research expeditions;
- organizes work on the training of scientific personnel and the improvement of the skills of scientific associates of the RAN;
- supervises the publishing activity of the RAN, approves the plans of publications of the RAN and monitors their fulfillment, allocates the assets that are necessary for the publishing activity of the RAN;
- plans the international ties of the RAN, carries out the scientific ties of the academy with the Academies of Sciences and other scientific institutions of foreign countries;
- awards gold medals and prizes named after prominent scientists for outstanding scientific works, discoveries, and inventions;
- submits to the general meeting of the RAN annual reports on its activity.

33. The presidium of the RAN approves the annual plan of the base budget financing of the academy, in which the distribution of the indicated assets among the departments of the RAN and the directions of the centralized expenditures of the academy is stipulated; annually delivers to the general meeting of the RAN a report on the fulfillment of the plan of financing, on the basis of which the meeting makes the decision on the directions and the priorities of the formulation of the plan for the next fiscal year; can establish in accordance with a decision of the general meeting of the RAN special funds and reserves for the special-purpose financing of the most promising directions of basic research.

34. The distribution of budget assets is carried out openly and publicly. The budget of the RAN and the report on its fulfillment are published in VESTNIK ROSSIYSKOY AKADEMII NAUK.

35. Scientific research institutes, temporary special-purpose collectives, interdisciplinary problem groups, libraries, archives, publishing organizations, houses of scientists, permanent exhibitions, councils, committees, journals, and other scientific, technical scientific, and auxiliary scientific institutions, organizations, and enterprises, which support the activity of the academy, can be attached to the presidium of the RAN.

The presidium of the RAN approves the directors of these institutions, the chairmen of the councils, committees and commissions, and organizations, the editors in chief of journals, and the journals published by them.

36. The presidium of the RAN carries out the monitoring of the observance of the charter of the RAN by all the members of the academy and its institutions and officials.

37. The presidium of the RAN has an office staff that operates on the basis of the statutes on it, which are approved by the presidium of the RAN.

VII. The Departments of the Russian Academy of Sciences

38. The department of the Russian Academy of Sciences unites the members of the academy, who have been elected for this department, and scientific associates of institutes and other scientific and auxiliary scientific institutions of the academy, which belong to this department.

The department of the Russian Academy of Sciences is the basic scientific and scientific organizational center, which unites in the Russian Academy of Sciences scientists of one or several fields of science.

The department has within it scientific centers, institutes, and other scientific and auxiliary scientific institutions. Scientific councils, commissions, and committees and scientific societies can be attached to the department; the department publishes journals in its specialization. The directors of the institutes and other

institutions, which belong to the department, are elected by the general meeting of the department.

At the pleading of sectorial scientific institutions and higher educational institutions the department can take upon itself the scientific methods supervision of these institutions. The decision on the scientific methods supervision of institutions, which do not belong to the RAN, is made by the general meeting of the department upon the representation of the bureau of the department.

The departments can establish associations from among scientific institutions which both belong and do not belong to it.

The department formulates the basic directions of basic research in the corresponding areas of science, carries out its monitoring at scientific institutions of the department, makes an analysis and forecast of the state and development of domestic and world science, supervises the activity of the scientific councils, commissions, committees, and societies, which are attached to the department, promotes the strengthening and development of scientific ties with scientific institutions and scientists of various departments and higher educational institutions, and develops international and interstate scientific cooperation.

39. The general meeting of the department, which consists of the members of the RAN, as well as the scientific associates, who have been sent as delegates by the scientific institutions of the department in accordance with the quota established for them, for a term of one to five years, is the highest body of the department of the RAN. The scientific associates, who are sent as delegates to the general meeting of the department from scientific institutions, are elected by the academic councils of these institutions by secret ballot. These scientific associates are also sent as delegates to the general meeting of the RAN from the scientific institutions of the department for the same term (see point 25).

At the general meeting of the department all its members have the right to vote with the exception of the instances that are stipulated by points 17 and 23 of this charter.

The general meeting of the department is authorized to make decisions, provided a simple majority of the members of the department is present at the meeting; questions are settled by a majority of votes with the exception of the instances that are stipulated by points 17, 19, and 23 of this charter.

40. The bureau of the department, which is headed by the academician secretary of the department, supervises the work of the department during the period between sessions of the general meeting of the department.

The academician secretary of the department is elected by the general meeting of the department from among the full members of the RAN.

The deputy academician secretaries and the members of the bureau are elected by the general meeting of the

department from among the members of the general meeting and are approved by the presidium of the RAN.

The election of the entire membership of the bureau of the department is conducted simultaneously for a term of five years by secret ballot.

In all its activity the bureau of the department is accountable to the general meeting of the department. The bureau reports to the general meeting of the department on the most important decisions that were made by it during the period between sessions of the general meeting of the department.

When standing for reelection the bureau of the department submits to the general meeting of the department a report on its activity during the past five-year period.

41. The academician secretary of the department is the speaker at the meetings of the presidium of the RAN on questions, which have been assigned to the jurisdiction of the department, chairs the general meeting of the department, and in his actions is accountable to the general meeting of the department and the presidium of the RAN.

42. The functions and powers of the general meeting and bureau of the department are specified by the statute on the department of the RAN, which is approved by the general meeting of the RAN. Statutes on each department of the Russian Academy of Sciences with allowance made for the specific peculiarities of their activity, which are approved by the presidium of the RAN, can be drafted on the basis of this statute.

VIII. The Regional Departments of the Russian Academy of Sciences

43. The regional department of the Russian Academy of Sciences unites the members of the RAN, who work in this region, and the scientific associates of the institutes and other scientific and auxiliary scientific institutions of the academy, which are located in this region.

The regional department has within it regional centers, institutes, and other scientific and auxiliary scientific institutions.

The decision on the organization of a regional department is made by the general meeting of the RAN on the representation of the presidium of the RAN. The decision on the organization of new scientific institutions within the regional department is made by the presidium of the RAN on the representation of this regional department.

44. The development of research, which is aimed at the solution of the most important problems, as well as the accomplishment of tasks, which contribute to the most successful development of this region and the Russian Federation as a whole, is the basic task of the regional department.

45. The highest body of the regional department of the Russian Academy of Sciences is the general meeting of this department, which consists of the members of the RAN for this department, as well as the scientific associates, who have been sent as delegates by the scientific institutions of the regional department for a term of one to five years. The procedures of the election of the representatives of the institutions of the regional department to the general meeting of this department and to the general meeting of the RAN (within the quota of the regional department) are established by the charter of the regional department.

46. The scientific research work of the institutions of the regional department is coordinated by the departments of the RAN, which correspond to their specialization.

During the election of full members and corresponding members of the RAN the presidiums of the regional departments come to an agreement on the breakdown by specialties of the vacancies, which are attached to them and are being newly allotted, with the bureaus of the departments of the RAN.

The departments in case of the election of full members and corresponding members of the RAN to vacancies of the regional departments take into account the recommendations of the general meetings of the regional departments.

47. The presidium of the regional department is the governing body of the regional department during the period between sessions of the general meeting of the department.

The presidium of the regional department is made up of the chairman of the department, the vice chairmen, the chief scientific secretary of the department, and the members of the presidium of the regional department. The chairman of the regional department is elected by the general meeting of this department from among the full members of the RAN.

The deputy chairmen, the chief scientific secretary, and the members of the presidium are elected by the general meeting of the regional department from among the members of the general meeting of this department and are approved by the presidium of the RAN.

The election of the entire membership of the presidium of the regional department is conducted simultaneously, for a term of five years, by secret ballot.

In all its activity the presidium of the regional department is accountable to the general meeting of the department. The presidium reports to the general meeting of the department on the most important decisions that were made by it during the period between sessions of the general meeting of the regional department.

When standing for reelection the presidium of the regional department submits to the general meeting of the regional department a report on its activity during the past five-year period.

48. The functions and powers of the general meeting and presidium of the regional department of the RAN are specified by the charter of this department. The charters of the regional departments are approved by the general meeting of the RAN.

IX. The Regional Centers of the Russian Academy of Sciences

49. The regional centers of the RAN are associations of institutes and other scientific and auxiliary scientific institutions of the RAN in regions, the comprehensive development of which is of great economic and cultural importance.

50. The presidium of the regional center carries out the scientific organizational supervision of the regional center of the RAN. The presidium of the regional center is made up of the chairman of the presidium of the center, the deputy chairmen, the chief scientific secretary of the center, and the members of the presidium. The chairman of the presidium of the regional center is elected by the general meeting of the center from among the members of the RAN and is approved by the general meeting of the RAN. The deputy chairmen, the chief scientific secretary, and the members of the presidium are elected by the general meeting of the regional center from among the members of the general meeting of this center and are approved by the presidium of the RAN. The presidium of the center is elected for a term of five years. The general meeting of the regional center consists of the members of the RAN for this center, the directors of the scientific institutions of the center, and the scientific associates, who have been sent as delegates by the scientific institutions of the center for a term of one to five years in accordance with the procedure that is established by the charter of the center. The membership of the presidium of the regional center is approved by the presidium of the RAN on the representation of the chairman of the center for a term of five years.

51. The charter of the regional center of the RAN is approved by the general meeting of the RAN.

X. The Scientific Research Institute of the Russian Academy of Sciences

52. The institute, the main goal of which consists in conducting basic research, is the basic structural unit of the scientific research activity of the Russian Academy of Sciences.

For the accomplishment of its goals the institute independently solves economic, social, and organizational problems.

The institute can belong to a department, regional department, or regional center of the RAN or be attached to the presidium of the RAN.

53. The director of the institute heads the institute of the RAN. The director of the institute is elected at the general meeting of the corresponding department (regional department) or at the joint session of the

general meetings of several departments by secret ballot for a term of five years from among the candidates who were supported by the scientific collective of the institute.

54. The institute of the Russian Academy of Sciences operates on the basis of its own charter, which has been drafted in conformity with the Basic Principles of the Organization and Activity of the Scientific Research Institute of the RAN, which are approved by the general meeting of the RAN. The charter of the institute is approved by the general meeting of the department or the regional department, to which it belongs. The functions and powers of the director of the institute and the academic council of the institute, as well as the duties and rights of the scientific associates of the institute are specified by the charter of the institute.

XI. Special Rights of the Russian Academy of Sciences

55. The Russian Academy of Sciences stores the manuscripts of scientists and figures of literature, culture, and art, as well as the archive materials of the institutions of the RAN and other materials, which are of value for the history of science, in the Archive of the RAN and in the archives of the scientific institutions of the academy, without turning them over to the statewide archive repositories.

56. The general meeting of the RAN, the presidium of the RAN, the departments, regional departments, and scientific centers of the RAN, the scientific research institutes and scientific institutions equated with them of the RAN have seals with the image of the State Insignia of the Russian Federation and with the designation of the name of the corresponding institution.

XII. The Procedure of the Amendment of the Charter of the Russian Academy of Sciences

57. The amendment of the charter of the Russian Academy of Sciences is carried out in accordance with a decision of the general meeting of the RAN, which has been adopted by a majority of not less than two-thirds of the votes of the full membership of the general meeting of the RAN, here a majority of votes of the registered members of the RAN and a majority of votes of the registered full members of the RAN are necessary.

(During 1992 amendments are not being made to the Temporary Charter.)

Appendix to the Temporary Charter of the Russian Academy of Sciences

The Departments of the RAN for Areas and Directions of Science:

- 1) The Mathematics Department;
- 2) The General Physics and Astronomy Department;
- 3) The Nuclear Physics Department;
- 4) The Physical Technical Problems of Power Engineering Department;

5) The Problems of Machine Building, Mechanics, and Control Processes Department;

6) The Information Science, Computer Technology, and Automation Department;

7) The General and Technical Chemistry Department;

8) The Physical Chemistry and Technology of Inorganic Materials Department;

9) The Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department;

10) The Physiology Department;

11) The General Biology Department;

12) The Geology, Geophysics, Geochemistry, and Mining Sciences Department;

13) The Oceanology, Atmospheric Physics, and Geography Department;

14) The History Department;

15) The Philosophy, Sociology, and Law Department;

16) The Economics Department;

17) The Problems of World Economics and International Relations Department;

18) The Literature and Language Department.

The Regional Departments of the RAN:

- 1) The Far Eastern Department;
- 2) The Siberian Department;
- 3) The Ural Department.

The Regional Centers of the RAN:

- 1) The Dagestan Scientific Center;
- 2) The Kazan Scientific Center;
- 3) The Karelian Scientific Center;
- 4) The Kola Scientific Center;
- 5) The St. Petersburg Scientific Center;
- 6) The Samara Scientific Center;
- 7) The Saratov Scientific Center.

New Russian Academy of Sciences President Interviewed

927A0086A Moscow MOSKOVSKAYA PRAVDA
in Russian 19 Dec 91 p 1

[Interview with Academician Yuriy Sergeyevich Osipov, president of the Russian Academy of Sciences, by V. Yegikova; date and place not given: "The New President of the Russian Academy of Sciences, Academician Yuriy

Osipov, Believes: Not Individuals, But the State as a Whole Should Protect Science"—first two paragraphs are MOSKOVSKAYA PRAVDA introduction]

[Text] At the general meeting of the Russian Academy of Sciences, which is being held these days, the election of the president was conducted. Fifty-five-year-old Academician Yuriy Sergeyevich Osipov became him.

A mathematician is again at the helm of the academy. Its new president until recently worked at the Institute of Mathematics and Mechanics of the Ural Department of the USSR Academy of Sciences. Then the difficult mission of being the organizing president of the Russian Academy of Sciences fell to him. As we already reported, this meeting is also fulfilling the important task of integrating the union and Russian academies. In accordance with the ukase of the president of Russia the unified Russian Academy of Sciences is being reestablished. It is its new president's turn to speak.

[Yegikova] Yuriy Sergeyevich, permit me on behalf of the readers of the newspaper to congratulate you, although you are taking the reins of government at a difficult time....

[Osipov] It is indeed a difficult time, including for science. The most complicated processes, which are taking place today in our country, are being projected on science and are placing it in a very vulnerable, I would say, supervulnerable position. Moreover, basic science is proving to be particularly open to attack and unprotected.

The formation of market relations is taking place, and this is also leaving its mark on science. Because everything that is done here does not have an immediate demand. This is simply an element of human culture, and the most thorough understanding of the fact that without serious state support science will not hold out, is necessary.

Take a look at how many billions Germany, for example, is investing in its science. In this country at a certain time scientists were persecuted and science was rejected. And today the return to the former positions in, say, mathematical research is proving to be far from easy. But Germany at one time was famous for its mathematical school.

If we do not want to turn into a third-rate country, we should give science the place that it deserves. It is unthinkable and impossible to remain in the position, in which scientific collectives were recently, when financing was allocated literally monthly and every month the prospect of paying money to researchers was in doubt. I am not talking about the fact that scientists were without scientific periodicals, this year it was not possible to subscribe even to foreign journals, the debts for old literature remained—there is no intellectual replenishment at institutes....

But international ties are also in jeopardy. For if the gloomy forecasts with respect to railroad and airline tickets prove to be correct, trips of scientists abroad will prove to be simply impossible. What researcher will be able to venture to pay tens of thousands for such a trip? While for science this is a little worse than the "iron curtain."

That is why today the primary task is the establishment of a basic research fund, a fund that protects basic science. The question now is precisely this—a question not of support, as was said earlier, but namely of the protection of science. Fortunately, this understanding exists. Yesterday B.N. Yeltsin, the president of Russia, addressed the general meeting of the academy. What he said is serious evidence of the fact that at the state level there is the intention to give the utmost support to basic science and the appropriate decisions are being prepared. And I want to believe that the coming year will also prove to be a turning point for it.

[Yegikova] Do many organizational matters also have to be carried out this year?

[Osipov] They are also very important. Here, you realize, everything is interconnected. The reappraisal of values is taking place, and much at the academy cannot remain as it was yesterday. At the same time here one must not act in haste, it is necessary to single out very carefully, but clearly what is top priority. And not forget: Such a delicate material—the continuity of the historical process of the development of science—exists. If the connecting threads are broken, the losses may prove to be irreplaceable....

Saltykov Interviewed on S&T Reorganizations

927A0104A Moscow RADIKAL in Russian No 49-50,
18 Dec 91 pp 1, 3

[Interview with Boris Georgiyevich Saltykov, RSFSR Minister of Science, the Higher School, and Technical Policy, by RADIKAL special correspondent Marina Lapina; date and place not indicated: "Do Not Shoot the Piano Player. He Is Playing as Best as He Can"—first paragraph is RADIKAL introduction]

[Text] RADIKAL special correspondent Marina Lapina met with RSFSR Minister of Science, the Higher School, and Technical Policy Boris Saltykov two weeks after his appointment to this position. It is not surprising that the conversation was more of an introductory nature. As Boris Georgiyevich assured us, meetings for specific reasons are still ahead. Why, he is a man of his word, of which we were able to satisfy ourselves when cooperating with him as an economics scholar.

[Lapina] Boris Georgiyevich, we have repeatedly had occasion to hear from B. Yeltsin and other top leaders of Russia that the present cabinet of ministers is the most competent one of all those that existed earlier. Nevertheless reproaches addressed to the government that it is

excessively academic are frequently heard. You are precisely among the minister-theorists, who all their lives were engaged in scientific activity and were far from practical work of such a level. In the two weeks that you have held the ministerial chair have you had occasion to sense a gap between the exclusively theoretical notions about our science and the practical steps that now have to be taken?

[Saltykov] Of course, I have. As to the essence of the problem, upon which you have touched, it has a reverse side. In the old system a good executive was associated with a good manager, who developed from the director of a plant to a minister and knew how to distribute state resources well. There were unique laws of a distributive genre, criteria, and a system of values and priorities.

If we declared that we are giving up this system, completely different approaches to management are needed. The old stereotyped pattern can draw in the present leaders. This is one of the basic dangers of a new government, especially as during a time of crisis one has to act most often of all by administrative methods, although this does not mean by old methods.

Now I am just looking into the situation that has formed in Soviet science....

[Lapina] Pardon me, but it seems to me that you have a rather good idea of it.

[Saltykov] Yes, in general outline. But I deliberately devoted these two weeks to receiving everyone who wanted to see me, from representatives of the student body to academicians and general designers. I wanted to let all their problems pass through me. It is one thing to see figures, for example, how much the capital-labor ratio of our science lags behind that of American science, it is another thing to have a talk with a living person, "to see tears on paper." As I have been convinced, all the requests of our scientists and engineers are dictated by the same thing—to save the potential which each of them has. I can note with pleasure that during this time there was not one person with pseudoprojects. Indeed, in many fields of science the situation from the financial standpoint is catastrophic. Disintegration is continuing, and its rate for the present is increasing.

If we return to your question, experience in administrative work is indeed not enough. Even greater is the lack of personnel on the staff, who think in terms consistent with the new style of management and the new strategy, which consists in forming the optimum conditions of the activity of scientific research institutes, design bureaus, and plants by means of tax, credit, and other policy. As to science, it requires considerable budget financing. This is all basic science and education, with respect to which distributive methods are as if being retained. But the question consists in who distributes the assets. Scientists themselves should do this. Such a system has not been established in our country. A minister can always make a mistake when guessing whether to give money to that program or to this one. But previously it often

happened precisely that way, although expert councils existed. In this sense the system of attributes will be retained in our country—expert councils, competition commissions, and so on. It is necessary that all this begin to work as contemplated. In my opinion, it is necessary to begin with something small—for example, with the creation of a small basic research fund, in order to acquire experience.

People, who if only theoretically visualize how the new mechanism should operate, can manage. However you teach an administrator, it will turn out as in the introduction to a tale: Do not shoot the piano player, he is playing as best as he can. In this sense the choice of a president not with respect to separate individuals, but with respect to the character, the mentality of the people, who will manage the economy, in my opinion, is correct.

[Lapina] You do not have to be an oracle to predict: Even with the most favorable course of the implementation of the begun reforms it is possible to call the present government a provisional one....

[Saltykov] There are also other epithets, for example, the crisis cabinet....

[Lapina] Various terms of its possible existence—from several months to several years—are being named. Moreover, the unprecedented declaration of Yeltsin that if the course of reforms, which the government has begun, by the fall of next year reaches an impasse, this government and Boris Nikolayevich himself will resign, was heard nationally. Do you agree with this, what are your estimates with respect to the life of the present cabinet of ministers and, if you realized that the government is a provisional one, what prompted you to accept the offer of a ministerial portfolio?

[Saltykov] The realization that someone should set to work on real reform. When inviting me to take the position of minister, they said to me: You are always writing in articles how it ought to be done. Do you not want to try to implement your proposals in practice? I understood that this is the last chance to do personally what I am sure of. I would not begin to engage in experiments and to think up management diagrams on the go. They matured long ago.

Now with regard to two to three months or other terms. I must honestly say that the ministry of science and science in general are not in the mainstream of the transformations of the life of our society. In this sense the transformations in our sphere will hardly become the source of the resignation of the government, although, for example, the student body is very explosive material. If they "brand" the government, it will obviously be along the Gaydar or Shokhin line.

[Lapina] If they do not sort things out, they will brand everyone....

[Saltykov] That is what I am saying. We all realize that if during the first and second quarters of next year we

succeed in keeping the economic and social situation under control and in convincing a large part of the population of Russia that there is simply no other way, we hope that we will succeed in halting or freezing until next fall the overall decline. Therefore, in the discussions with respect to the life of the government there is not more rationality, but more emotionality. Perhaps, this is even helping us to act regardless of the consequences.

Earlier the appointment of a person as minister meant for him a change of his way of life forever. I assure you that all my colleagues in the cabinet of ministers are not at all or almost not worried about this aspect of the matter. Incidentally, when I agreed to take the position of minister, I even did not know what wage I would have. Today I will receive it for the first time. It is probably high, and it will suffice me. I think that it is not less than the wage of the deputy director of the Analytical Center.

Such people, who will not be lost outside the government, are becoming members of the government. We are not nomenclature. I will return to my scientific work, Gaydar will return to his institute.... Therefore, each of us will try in the shortest possible time to do as much as possible. Today's crisis is comparable to the crisis that set in after the civil war, although the scale is different and the forms of manifestation are different. The same lack of money and the complete lack of interest in science are typical. In this sense the situation is absolutely alike.

[Lapina] Boris Georgiyevich, let us talk about science proper and the structures of its management. Until recently there actually existed in our country two ministries of science—the State Committee for Science and Technology and the USSR Academy of Sciences, meaning the distributive functions that they performed. These functions for the time being will be reserved for the Ministry of Science, the Higher School, and Technical Policy, which succeeded the State Committee for Science and Technology and a number of other departments. But the processes, which are taking place in connection with the establishment of the new Russian Academy, give grounds to infer that, in spite of all the principles, which are being declared by its organizers, in a certain sense it will be the successor of the USSR Academy of Sciences, moreover, the successor of not its very best traditions. Some ministerial functions, I think, will be reserved for the Russian Academy. It appears that the Russian Academy of Sciences will become one of the political symbols of Russia, to which the political struggle for the not yet established organization testifies.

[Saltykov] I have heard about the rather radical changes at the academy, for example, the inclusion in the General Assembly of electors from the institutes. They and the corresponding members together with the academicians will settle all basic questions. In my opinion, this is a significant step forward. In general the question of the academy is a separate discussion. I am an opponent of forming the academy at once tomorrow in accordance with the principle of the ideal custom-made model. It is

arising in the form of an association of institutes as self-managed organizations, as well as presumes the establishment of an elective body and a basic research fund—for the present none of the three exists. And you will not create this overnight. For some reason in this case the members of the academy and the scientific community, or scientists, are divided. Excuse me, but among the members of the academy there are quite a number of scientists, who just as candidates and doctors are worried about the fate of science. Such an opposition is incorrect in principle. It has a populist nuance: A candidate or doctor, they say, is a real scientist, while an academician is no longer a scientist, but an administrator. There are specific addresses of such criticism, but they also exist among doctors and candidates.

I believe that changes of the academy, which did not exist three to five years ago, have begun. The election of directors is not a change. Now we understand that, perhaps, this was even a mistake.

As for the Ministry of Science, the Higher School, and Technical Policy, for some time it will perform distributive functions. We will gradually transfer them to the fund, but for the present will give assets for specific projects and programs. Scientists themselves in the person of experts will decide how much for which ones. But I am already convinced that it is absolutely necessary to assign to someone the functions of coordinator and to have a centralized information bank. At times in Novosibirsk they do not have an idea of what is happening in St. Petersburg, not everyone has an opportunity to get in touch with plants, and so on.

[Lapina] Boris Georgiyevich, now a few words about when the key question of financing will finally be settled. According to the data, which we had approximately a month ago, it was a matter of such a sum of expenditures on science as 18 billion. That is how the need for state budget allocations with allowance made for inflation, which are necessary not for the development, but for the survival of science, was estimated. Now they have already begun to talk about the fact that such a sum is out of the question. About what integral sum for science is it now all the same possible to speak realistically, if you take into account the catastrophic state of the Russian budget?

[Saltykov] In 1991 we entered into a situation of open inflation. Therefore, it is pointless to name simply some billions: It is necessary to speak in the prices of some year, and now already of some month. Now there is not even a Russian budget, especially a budget for science—it is now in the process of being made up. Moreover, it is simply tactless to talk about a budget for 1992. It is impossible to draw it up—there are too many variables. It is possible only to talk about two or three versions of the forecast. The most reliable one concerns the first quarter, although one-year estimates are also being made. We in the ministry are now making some applications, of course, on the basis of yesterday's expenditures, then there will be talks with the Ministry of

Finance, and so on. Therefore, I would not name absolute figures. They divert one from the essence of the matter. For example, one of such figures is more than 60 billion, but this figure appeared after they increased the wage by a factor of 4.9. But no one today knows yet whether this will be 5.5 or 3.

Moreover, the very object of management, which belongs to our ministry, thus far has not been specified. The military-industrial complex and, thus, defense science are now disintegrating. For the present it is not known whether it will belong to the Ministry of Science, the Higher School, and Technical Policy, but this is a substantial share in the total amount of financing. It is obviously possible to say just one thing: Most likely there will not be an overall increase with respect to last year. The question will be settled only toward the end of December, if not at the beginning of January.

[Lapina] What are scientists and directors of institutes to do in this situation?

[Saltykov] I say to everyone, with whom I met: Seek sources of financing.

[Lapina] And what are those people, who are engaged in purely basic science, to do?

[Saltykov] I do not know a single purely basic institute. At those institutes, where such science predominates, the people with interests at stake are finding money abroad, by participating in joint grants and projects, by selling equipment, if there is an experimental works at the institute, as, for example, the Siberian Institute of Nuclear Physics is doing, and so on. It is possible to sell brains, without selling oneself at all. During the time that I have been sitting in this chair, I have understood how great our potential is in nearly all fields of science.

I think that the forecast, which we gave at the Analytical Center, will prove to be correct. Far from everyone will survive. Our task is to do everything possible so that the intellectual elite would survive. You will probably agree that much ballast exists in our country.

[Lapina] I absolutely agree with you.

[Saltykov] Our task is not to engage in rescuing the ballast. But when the state allocates assets simply for the maintenance of the structure, the resourceful "ballast" shoves out real scientists in order to survive itself.

[Lapina] Incidentally, in the speeches of the organizers of the Russian Academy one heard the idea that they have no objection to carrying out the selection of academic institutes and to not taking all of them en masse under the wing of Russia. This caused a storm of indignation among members of the academy....

[Saltykov] And not without reason. In my "inauguration" speech I began with the fact that among my main goals is to halt the civil war between Russian and union science on the territory of Russia. Representatives of the Russian outlying regions emphasized the fact that there

are many talented people not only in the center, but also in the provinces. This is so, although in outlying regions there is also enough ballast. But when the "outlying region" line won politically, obvious extremes began: Beat, destroy all central science. Now, they say, American-style VUZ ideology will flourish.

It is necessary to improve our higher educational institutions without fail, particularly in outlying regions, but not by the destruction of the academic castles of science—castles in both the good and the bad sense. People who have grown a little fat have settled at them, but our scientific elite has also been gathered there. We are all Russians, and it is necessary to support people depending on what kind of values they produce, and not depending on who displays what flag—a monochromatic or tricolor flag, although now everyone is with a tricolor flag.

[Lapina] But is the West really interested in our science and willing to actually support it?

[Saltykov] This is a separate theme. The question is now being studied in both European and American circles. In particular, three strategic directions of assistance to Soviet science are being discussed with the American administration. One of these directions is well known—support through the National Science Foundation, which for a long time has been issuing grants for joint research. But up to this point they were limited to exchanges of scientists, while now we have come to the understanding that a portion of the assets within the framework of grants will be used for equipment, which will be delivered to our territory. We are trying to see to it that another portion of the money, which the American side manages, would be relayed to us. Having received \$10,000 and having sold them at the rate on the exchange, we could support some laboratories. This is just one strategic direction, the smallest one.

[Lapina] What are the other two?

[Saltykov] This is a lengthy and complicated subject. For the present I will not say anything more to you....

[Lapina] What do you think about the fact that Khasbulatov, Popov, and other Russian leaders were candidates for members of the Russian Academy?

[Saltykov] This is a matter of their own conscience. I was present during the discussion of one of those who ran, who holds a post in the Supreme Soviet, with A. Zakharov, who represents the scientific community. Candidate of Sciences Zakharov asked the candidate why he was doing this, and he replied that he has the right—he has many scientific works, colleagues in his specialty know him, and so on. And in this sense he is absolute correct. Laws of the election type entirely allow him to act like that. But there are also the laws of ethics. I would have submitted the documents after I had left the leading position, although it is also probably possible to act differently. These are too delicate and personal subjects.

Yeltsin Decree on Academy of Sciences Heats Up Political Battle

927A0130A Moscow RADIKAL in Russian No 48,
11 Dec 91 p 2

[Article by Vladimir Pokrovskiy under the rubric "Reform in Science": "The Academic Temperature of the Week"—first paragraph is RADIKAL introduction]

[Text] Again events are leading one into another—the preparation for the conference of scientists and for the election to the RAN [Russian Academy of Sciences] and the discussion of the ukase of the President of Russia.

To Life or To Survive?

On Thursday, 28 October, the Supreme Soviet of Russia discussed the ukase of Yeltsin on the Russian Academy of Sciences (you might have read the text of the ukase in the last issue of RADIKAL). And this discussion was very intense.

Very soon, in the words of Deputy Viktor Sheynis, the talk went beyond the discussion directly of the ukase and its shortcomings, many deputies began to express apprehensions that the election to the RAN has been set to a certain extent hastily and now there is no certainty that the academy will actually be reinforced with the staff that it needs. It was also said that when the Supreme Soviet made the decision on the establishment of the RAN, the political situation was completely different and the question of the transformation of the union academy into the Russian academy at that time had not yet arisen. However, when the proposal to postpone the election to the RAN appeared, this proposal was not supported.

In return the deputies decided that the situation with the Russian academy required serious analysis, and charged the Committee of the RSFSR Supreme Soviet for Science and Higher Education to study the question of the property of the academy (inasmuch as this directly concerns the rights of the parliament) and to think out some forms or others of the merging of the RAN and the USSR Academy of Sciences.

Since September scientists had been appealing to the parliament with the demand to postpone the election to the RAN, and only a few days before this election did the Supreme Soviet pay heed. And, it appears, Ruslan Khasbulatov feared in vain that the members of the parliament would persist in their former decision and would not reverse it for the world—it was only necessary to begin to talk about this a little earlier. Now, very likely, it is a little late to change anything.

As for the ukase, no one, fortunately, proposed to repeal it. Fortunately, because the union accounts of the academy had already been frozen. The only way for it to survive is to operate on the basis of the ukase and to obtain financing as the "reconstructed" Russian Academy of Sciences.

Thus ended the weeks-long, nearly detective-story epic of the development of the presidential ukase on basic science—with sudden disappearances of its drafts, with abrupt transformations from a radical democratic to an extremely conservative appearance and back. The Russian Academy inserted one thing, the union academy inserted another, the Club of Voters of the USSR Academy of Sciences deleted everything and inserted its own thing. The present version, which was signed by Yeltsin, was the consequence of a compromise, although, perhaps, this is a compromise only on the part of the Club of Voters of the USSR Academy of Sciences, the utmost of that, to which the representatives of the academic community could agree, inasmuch as one of the people, who took part in the writing of the ukase, he is the author of the draft of the charter of the "reconstructed" Russian Academy of Sciences, Academician Andrey Gonchar is satisfied with its content and believes that it, with the exception of several blemishes, corresponds as best as possible to the idea that was incorporated in the charter of the Russian Academy of Sciences. Briefly speaking, this idea reduces, in the words of Gonchar, to radical changes of the academy with the retained rigid academic structure of management.

Viktor Finn, a member of the organizing committee, which is making the preparations for the conference of scientists of academic institutions (it will be in full swing when this article is published), and one of the authors of the model "Association of Institutes"—the most radical of the models proposed by the organizing committee for consideration by the academic community—believes that, in spite of the obvious drawbacks, this ukase enables academic science to remain alive, inasmuch as the union academy is being transferred in accordance with the ukase to the jurisdiction of Russia and inasmuch as it protects it against the breakup of academy property (inclinations for which have already been repeatedly observed).

It is also very gratifying, Finn believes, that in accordance with the ukase the final form of the merging of the two academies will be worked out with allowance made for the opinions expressed at the conference of scientists. Although the concept "with allowance made for" can be interpreted in different ways and it is not ruled out that this allowance in the end will prove to be purely nominal.

The drawbacks? Everything depends on interpretation, Finn believes. This ukase affords a chance to survive, but leaves not too many opportunities to develop. It makes it possible to retain the former structure and does not proclaim principles, which change the military-feudal system of the management of domestic science to a normal, liberal system that takes into account the opinion of professional scientists. In particular, nothing is said either about the demonopolization of the management of science and its financing or about the multitude of funds. The rights of collectives and individuals are left aside—but it was necessary, most likely, to begin the changes with this. And so on and so forth.

In general it is very pleasant that the disputes in the organizing committee between the two, it would seem, hard to reconcile sides are following all the rules of scientific debate. The opponents want not so much to have it their way as to come to an agreement. They respect the point of view of the "antagonist," which is extremely unusual for us, who for many years observed disputes in which, on the one hand, we, as a rule, saw the omnipotent "likeness of a face" with the hard to discern stamp of intellect and very free concepts of morality and, on the other, that of the noble, but impotent knight.

Here it is otherwise. If we return to the above-indicated figures of Gonchar and Finn, the "conservative" Gonchar, it appears, both in words and in deed is striving to reconcile the interests of the elaborate interweaving of two "interpenetrating sets"—"simple" scientists and academicians. "Reformer" Finn, in defending his point of view, states that he is quite willing to understand people who are afraid to stir the structure for fear of destroying it.

"The idea of an association is a correct idea," he says. "However, the transition to it may prove to be protracted. Our science will come without fail to the association of institutes, we are proposing as if the ultimate goal, the reference point, while our opponents are striving to ensure for the most part survival today. Both are important."

"Here Is Where the Waves of the Mesozoic Splashed!"

That is how one of the participants in the meeting of the presidium of the USSR Academy of Sciences on 2 December appraised what happened at it. The problems of the preparation for the conference of scientists and, in particular, the package of proposals, which was prepared by the organizing committee for discussion at the conference, were examined at the meeting. The reaction of the conservative part of the presidium to this package amazed even old hands. The indignation of the academicians exceeded the degree, beyond which hysterics begin. Without troubling themselves too much with specific valid objections on one point or another, and at times speaking in general according to the principle "I did not read, but I will say," the most hardened of the "immortals" one after another ventured attacks and accusations, which were not based on anything, against the organizing committee, which in respectable society is considered at least bad form.

The demands to cancel and to postpone the conference, to replace Velikhov, and so forth were heard. Academician Mesyats, who is well known for the fact that at the last General Meeting of the USSR Academy of Sciences he interpreted in an original way the demands for radical reforms at the academy ("They want to appoint little commissars to look after us"), vented his anger at the Muscovites who were stirring up trouble, while in his

region everything is in order and no reforms are necessary, and as a sign of protest quit the organizing committee, in the work of which, incidentally, he had not participated as it is.

In short, at this meeting of the presidium the long pent-up steam was released. As a result nothing specific was decided, if you do not count the demands to give the floor on the first day of the conference to President of the Academy of Sciences Guriy Marchuk and to include in the conference all academicians with the right to vote. Which demands on the same day were also met by the organizing committee of the conference.

The Dangerous Art of Compromise

The policy of compromise, as the classics teach us, is an extremely useful thing, but the Club of Voters of the USSR Academy of Sciences, which today represents the interests of the scientific community, can slip up awfully with this policy. This became clear on Monday, 2 October, at the regular meeting of the organizing committee of the conference of scientists. The problem concerns in what capacity academicians will be represented at the conference. Initially it was proposed that, inasmuch as academicians for the most part work at academic institutes, they should go through the procedure of election on equal grounds with everyone. Then, under the pressure of the leadership of the academy, this position changed: The members of the academy now should have followed a different list and with another, more preferential quota. While the disputes about the size of this quota were taking place, protests not of members of the academy began to be heard from all directions, particularly from outlying areas—why is it, they say, that there are such preferences for academicians, how are they better? As a result the organizing committee got into a very complicated position: On the one hand, it is already too late to hold elections among the academicians and, on the other, one must not return to the former, natural, procedure, inasmuch as the elections at institutes had already been held. It is also impossible to send to the conference some portion of the academicians—because the others will be offended. It is impossible, as was proposed on the same day at the meeting of the presidium of the USSR Academy of Sciences, to admit to the conference all the members of the academy either without the right to vote (because this would be discrimination against academicians) or with the right to vote (because this would be discrimination against the academic community).

The organizing committee had to think up a truly balancing-trick version: All academicians will be invited to the conference with the right to vote. They will receive exactly the same credentials as the other delegates. However, the possibility of settling questions exclusively by the votes of nonacademicians will be incorporated in the voting procedure. For this the organizing committee before the necessary voting will exchange the credentials of academicians for the same kind that were prepared in advance, only of a different color. And it is not at all a

fact that even such a feast of the mind will make it possible to get by without offended people.

Efforts To Create Russian National Science Foundation Summarized

927A0130B Moscow RADIKAL in Russian No 48,
11 Dec 91 pp 2, 3

[Article by I. Nikolayev, chief of a division of the RSFSR State Committee for Science and the Higher School, under the rubric "Reform in Science": "On the Russian Science Foundation"—first two paragraphs are RADIKAL introduction]

[Text] The idea of establishing a foundation, which would engage in the financing of basic science, by using a system of grants, is not new. They also tried earlier to distribute money through grants: both in the system of the USSR Academy of Sciences and along the lines of the USSR State Committee for Science and Technology. However, they succeeded only in one thing: in discrediting the very idea of grant financing. In the end the people, who themselves had a direct bearing on the distribution of the money, often received it.

Nevertheless it is hardly worth rejecting grant financing. The experience of such organizations as the National Science Foundation and the National Institutes of Health (in the United States), the German Research Society (in Germany), and others testifies to its advantages.

The active process of reorganizing the system of bodies of state administration in Russia is now under way. And this moment, so it seems, is very suited for forming in the area of science an efficient mechanism of state administration. A national foundation, which sets as its goal the financing of basic science through a system of grants—the Russian Science Foundation (RSF)—could also become one of the most important elements of such a mechanism.

This foundation would not be some abstract basic research fund, which represents nothing but a line in the budget (precisely such a "fund" appeared in our country in 1991 after the well-known Ukase of the USSR President). It would also not be an organization that aspires to the financing of all basic science. This would be an independent state organization, through which competitive financing would pass. It would be incorrect to assume that the RSF would become a monopolist in the area of competitive financing.

Already this year the RSFSR State Committee for Science and the Higher School made an attempt to distribute several million rubles through grants.

Other foundations should and will be established—in the area of health care, ecology, agricultural sciences, and so on.

On the other hand, the very mechanism of the financing of research and development through ministries and departments will change: Contracts and grants will also be disseminated here. Base financing, which they wanted very much to "drive" into the basic research fund, can and should pass through the corresponding ministries and departments.

It is now already necessary to specify clearly: Base financing in the future should be reduced, while competitive financing should be increased (it is a matter, of course, of a relative reduction).

In establishing the RSF, we are, in essence, laying the foundation of a system of a multiplicity of sources of financing.

The RSFSR State Committee for Science and the Higher School starting in late 1990 worked on the establishment of the RSF. Drafts of documents on the establishment and the organization of the activity of the foundation were prepared. The documents were submitted to all our top administrative instances—the RSFSR Council of Ministers, the RSFSR Supreme Soviet, and the RSFSR State Council. They, in our opinion, after going through these instances did not lose their essence. But the time had also come for the scientific community to express its opinion: Does Russia need such a foundation or not?

And it is here that another danger lies in wait for the emerging foundation. In responding to the posed question, many people lose sight of the fact that this organization is being established for years, perhaps, many years. Not one state of the world, even though the most fortunate in the economic respect, is capable of financing all the applications of its researchers (at the U.S. National Science Foundation, for example, about 30 percent of those who submitted proposals receive grants). Consequently, we will still be faced with the problem of selecting the best projects and, thus, should develop an adequate mechanism of financing for alleviating it.

The opponents, forgetting the principles and conceptual essence of the RSF, begin to calculate: How much will be spent today on the pay of the staff of the foundation, and who today will be its president, its executive director, and so on and so forth? Over all this apparent examination of "important" questions we may lose the most important thing—time. After all, now many researchers have already bid farewell to the thought that their works will be claimed. If we let the moment pass, we lose hold of talented people. And not only and not so much in the sense of their departure for the West (there is precisely no great tragedy in this, on the contrary, people obtain a chance to maintain themselves as scientists, while Russia obtains a chance to use their intellectual potential in the future). Many people will simply leave science. This is what will become an irreplaceable loss.

At the same time as the work on preparing the documents of the foundation work was performed on the establishment on this basis of business contacts with the

U.S. National Science Foundation. The reaction of the Americans was very reassuring: They asked that the documents, which had already been prepared, be sent to them. In the summer of 1991 the Carnegie Corporation and the National Science Foundation made the decision to support our initiative, and in October a trip to the United States of a group of specialists and scientific personnel, who are working on this problem, took place. Intensive consultations at the National Science Foundation, the National Institutes of Health, the National Academy of Sciences, the New York Academy of Sciences, the Carnegie Corporation, and other organizations were strong support in the work on the establishment of our own national foundation. The American side, particularly the Carnegie Corporation, regards the project of establishing in Russia its own national foundation as "a most interesting and promising project in the area of the organization of science." It is possible to say unequivocally the following: We can count on assistance of the American side, including financial assistance—even though in a small amount—in the matter of the establishment and the organization of the activity of the RSF. And now whether or not such assistance will be given depends only on ourselves. If we establish the foundation that has been contemplated and try to shorten as much as possible the period of its formation, we can count on support, and support, perhaps, of not only the United States, but also other countries. That such support is possible does not cause us doubts. It is simply necessary, however trite this sounds, to work.

I want to cite in favor of this the following fact. The desirability of enlisting foreign scientists in the examination of projects of our research has already been repeatedly spoken about. However, the opponents of such an idea always had one argument in readiness: We will not find the currency to pay for these services. During the trip we raised practically everywhere the question of the possibility of enlisting foreign experts. And we always got the same answer: Such a thing is possible and will hardly require of the Russian side any substantial currency outlays, since professors of universities, who are the experts, will receive their professorial salary here, in the United States. A reassuring conclusion follows: Work on putting foreign scientists to work for examination in the sphere of domestic science is possible. In the end the scientific personnel, who actually show a low scientific level of their own research, are talking about the impossibility and inexpediency of such examination.

The question of the examination of projects is one of the key questions in the mechanism of the functioning of the RSF. Our scientists are full of pessimism when speaking about the prospects of the objectivity of an examination. It is hard to blame them for this, since there are sufficient grounds for such an attitude. And all the same a foundation without examination is impossible. It is possible to increase its objectivity by using the mechanism of overcoming "the conflict of interests," which is in operation in the same U.S. National Science Foundation; by

enlisting foreign experts; by informing the scientific community as much as possible about the activity of the foundation, and so on.

The establishment of the RSF would signify an important step in the establishment of the scientific infrastructure which would be comprehensible to the world scientific community. One must not underestimate the importance of this. But the main thing is that the real restructuring of the mechanism of the financing of research and development would begin. Under the conditions of the increasing limitedness of the budget financing of research and development this would help with the least cost to science to overcome the economic crisis in Russia.

New Members Elected to Russian Academy of Sciences Announced

Members Listed

927A0114A *Moscow POISK in Russian No 50 (136), 6-12 Dec 91 p 3*

[Article: "From the Organizing Committee of the Russian Academy of Sciences"]

[Text] In accordance with the notice of the Organizing Committee of the Russian Academy of Sciences (RAN) of 16-20 August 1991 (POISK, No 34) on the holding of the election of full members (academicians) of the Russian Academy of Sciences 1,738 candidates were nominated by the regional organizing committees of the Russian Academy of Sciences, the councils of scientific institutions and higher educational institutions, and state and public organizations.

The following scientists were elected full members of the Russian Academy of Sciences and corresponding members of the Russian Academy of Sciences by the general meeting of electors (founders) of the Russian Academy of Sciences on 6 December 1991 in accordance with "The Statute on the Procedure of the Formation of the Initial Membership of the Russian Academy of Sciences" (POISK, No 33, 1991) and the addendum to it on the holding of the by-election of corresponding members of the Russian Academy of Sciences (POISK, No 47, 1991):

Full Members of the Russian Academy of Sciences

The Humanities and Social Sciences Section

Zalygin, S.P., Moscow Osipov, G.V., Moscow Panchenko, A.M., St. Petersburg Topornin, B.N., Moscow

The Engineering Sciences Section

Konopatov, A.D., Voronezh Shipunov, A.G., Tula Shorin, V.P., Moscow

The Mathematics, Mechanics, and Information Science Section

Bakhvalov, N.S., Moscow Vitushkin, A.G., Moscow Voytsekhovskiy, B.V., Novosibirsk Yershov, Yu.L., Novosibirsk Merkuriev, S.P., St. Petersburg Nigmatulin, R.I., Tyumen Oleynik, O.A., Moscow Okhotsimskiy, D.Ye., Moscow Sidorov, A.F., Yekaterinburg Sinay, Ya.G., settlement of Chernogolovka, Moscow Oblast Shafarevich, I.R., Moscow

The Earth Sciences Section

Bogatikov, O.A., Moscow Dmitriyevskiy, A.N., Moscow Kontorovich, A.E., Novosibirsk Kotlyakov, V.M., Moscow Kurlenya, M.V., Novosibirsk Marakushev, A.A., Moscow Osipov, V.I., Moscow Solov'yev, S.L., Moscow Trubetskoy, K.N., Moscow Yushkin, N.P., Syktyvkar

The Physics, Power Engineering, and Radio Electronics Section

Zakharov, V.Ye., Moscow Larkin, A.I., Moscow Leontyev, A.I., Moscow Pavlovskiy, A.I., Arzamas, Nizhniy Novgorod Oblast Trutnev, Yu.A., Arzamas, Nizhniy Novgorod Oblast Fortov, V.Ye., Moscow

The Chemical and Medicobiological Sciences Section

Boldyrev, V.V., Novosibirsk Ilizarov, G.A., Kurgan Kazanskiy, V.B., Moscow Rusanov, A.I., St. Petersburg Stroyev, Ye.A., Ryazan

Corresponding Members of the Russian Academy of Sciences

The Humanities and Social Sciences Section

Alekseyeva, T.I., Moscow Arutyunyan, Yu.V., Moscow Volkogonov, D.A., Moscow Ganelin, R.Sh., St. Petersburg Kolbasov, O.S., Moscow Kuzeyev, R.G., Ufa Matveyev, A.K., Yekaterinburg Romodanovskaya, Ye.K., Novosibirsk Sakharov, A.N., Moscow

The Humanities and Social Sciences Section (Economics)

Afinogentova, A.A., Saratov Gizatullin, Kh.N., Ufa Obminskiy, E.Ye., Moscow Khasbulatov, R.I., Moscow

The Engineering Sciences Section

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The Chemical and Medicobiological Sciences Section

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Frolov Commentary on Elections

927A0114B Moscow *POISK in Russian* No 50 (136),
6-12 Dec 91 p 3

[Article by Vice President of the Academy of Sciences Academician Konstantin Frolov under the rubric "Our Commentary": "The New Academy Is New People. Vice

President of the Academy of Sciences Academician Konstantin Frolov Comments on the Election at the Russian Academy of Sciences"]

[Text] Every election at the Academy has brought a large number of unexpected things and surprises. From this standpoint the three December days of this year differed little from the elections at the Academy of Sciences, which have become traditional. The clash of opinions and positions took place in the same way, the expert commissions selected in the same way the most worthy candidates. And in exactly the same way the voting at the general meeting eliminated those people, who in the level of scientific achievements and in the quality of work proved to be inadequately prepared for participation in the activity of the academic community. However, several rather good scientists also did not reach the finishing line.

This election was the first at the new Russian Academy. And that is why electors from various regions and various scientific institutions had to be enlisted for its holding. People, who hardly knew each other and, at times, were not well enough acquainted with the candidates. At the same time this composition makes it possible to implement one of the principles, which seemed to many scientific personnel to be the acme of democracy—the participation of representatives of institutes and doctors of sciences in the election of members of the Academy of Sciences.

However, we should have stabilized to some extent this chafing collective of scientists. The participation of the full members of the Academy and the academician secretaries of the departments, who have experience in the holding of elections, became the foundation in it. And still blunders occurred.

As I said, good scientists were also not made members of the academy. For example, Doctor Adamov, a prominent specialist in the field of the automation of nuclear technology and the director of one of the institutes. He was not even included among the candidates for discussion in the section. At the same time the engineering sciences section proved to be, it can be said, excessively liberal and voted for the election as full members of the academy of scientists who had made themselves insufficiently known in basic research. Only the voting of the general meeting of electors made it possible somehow to correct the results: Nearly two-thirds of the candidates of the section were voted down.

So far I see a number of demands on subsequent elections. First, they should be held more often: if only once a year. Second, at the preliminary stage it is necessary to give the candidates an opportunity to do some work with academicians in joint commissions, editorial boards, and other public bodies. Here they will show their capabilities. And on the basis of the formed opinion the academic community shall draw a conclusion about the readiness of one scientist or another for work at the Academy of Sciences.

And I consider another feature of the election to be very important. As is known, Prof. N. Malyshev, former chairman of the State Committee for Science and the Higher School, and Doctor of Sciences V. Shorin, chairman of the Committee of the Supreme Soviet of Russia for Science and Public Education, sought the title of full members of the academy of Russia. Doctor of Sciences R. Khasbulatov, chairman of the RSFSR Supreme Soviet, was an candidate for the title of corresponding member of the Academy of Sciences. And whereas they got through the preliminary discussions in the sections successfully, N. Malyshev was voted down by the general meeting (in accordance with the election procedure, Professor Malyshev was recognized as a corresponding member of the Russian Academy of Sciences). Shorin took the necessary minimum number of votes for election as a member of the Academy of Sciences.

This situation evoked an ambiguous reaction of the scientific community. But let us try to evaluate it objectively. It is no secret to anyone that our attitude toward people, who hold top-level positions in the state, formed during the times when a high post gave its holder a large number of privileges. Hence, too, the attitude toward such a person. But is it worth evaluating Malyshev or Shorin by this scale? Malyshev is hardly to blame for the fact that they appointed him chairman of the State Committee for Science and the Higher School. And it was probably necessary to make the decision with regarded to him guided only by objective scientific descriptions. In our situation the "effect of the chief," if one can call it that, came into play.

As to Shorin, he, as I know well, is a good scientist in the area of aircraft construction and the development of engines, who is also performing work today. Apparently, this affected his election.

For a long time the Central Committee did not allow some executives to enter the elections at the Academy of Sciences. Or, on the contrary, it did. That is, by some right it decided who is to be an academician. Now public opinion settles the matter. But if we are heading for a rule-of-law state, the law should be at the head of everything in our country! In many countries it is not recommended to executives of state structures that they propose their own candidacy for elections to public organizations. Including academies. The lack of a precise and clear decision in this area is also causing some blunders. The law and only the law should regulate these complicated issues.

But as a whole, I believe, the election was rather good. The main thing is that the apprehensions that unworthy individuals would get into science did not prove to be correct. This did not happen. New people came to the new Russian Academy. Good, talented people.

Document Outlines S&T Reorganization Proposals

927A0084A Moscow *RADIKAL* in Russian No 45,
14-20 Nov 91 p 2

[Article: "From the Draft of the Concept of the Reform of the Organization of Basic Science in Russia"—first two paragraphs are *RADIKAL* introduction]

[Text] At the request of Aleksey Zakharov, cochairman of the organizing committee of the conference of scientists of academic institutes, we are publishing one of the documents that are being distributed among all the scientific institutions of the system of the Academy of Sciences for preliminary discussion in the collectives.

The document, which is being brought to the attention of the readers, is the summarized concept of academic reforms, which was drawn up mainly by members of the Club of Voters of the USSR Academy of Sciences and the Moscow Union of Scientists. Due to the lack of space we were forced to abridge the introductory section, in which the necessity of radical reforms at the academy is substantiated.

We are proceeding from the fact that the threat of ruin exists both for the community of academicians and for the entire research potential that is concentrated at institutes of the Academy.

The main shortcoming of the present system of the management of science is the lack of feedback between the governing body and the governed community, which in the end leads to the complete dependence of the scientist on the arbitrary actions of the administration.

At present the general meeting of the Academy of Sciences (which is not accountable to the institutes) elects the Presidium, and it hires the management staff, which is in no way accountable to the institutes. The formation of the optimum system of the coordination of scientific research is impossible without consideration of the interests of actually working scientists of all ranks.

The creative collective (a laboratory, a group, or an individual scientist), which has the right to advance its own proposals for the competition of financed projects and the right to the independent spending of assets, is the basis for the proposed structure of the organization of science. The institute is the union [obyedineniye] of such laboratories. It operates on the basis of a charter and acts as the owner of the building, the land, and the general equipment. The institutes are united into an Association and into intermediate professional unions, as well as (for the solution of social problems) regional unions.

The highest body of the Association—the general assembly of elected representatives of the institutes (the congress of scientists)—forms the Coordinating Council and charges it with the performance of the necessary general functions—the management of common property, the formation of the expert system, interaction with the authorities (including the assurance of state support

of basic research), the monitoring of the fulfillment of the Charter of the Association, and so on.

The reduction of the functions of the Coordinating Council to the necessary minimum and the orientation of the entire structure toward the laboratory and toward the individual scientist to a significant extent protect the system against the process of the appearance of a new bureaucracy.

The settlement of internal questions of the life of the community of academicians is carried out in accordance with the system now in effect. This community can become a part of the Association as its subject.

Members of the Academy of Sciences naturally can also be elected to the coordinating bodies. The collectives of institutes are extremely interested in the worthy representation of their interests, that is, the apprehensions with respect to the decrease of the level of competence are unfounded, at the same time actually working scientists settle the day to day questions of the existence of institutes.

The proposed system is structurally similar to the one in effect, which ensures the smoothness of the changeover, the preservation of the principles of the formation of the Academy of Sciences, and the continuity and indivisibility of the property of the Academy of Sciences. The fundamental difference of the proposed structure is the accountability of the organ of management to the community.

At the same time it is necessary to draft and adopt at the meetings of scientific collectives new charters of the institutes, which envisage such rights of the scientist as the right to submit a project for the competition of financed jobs, the right to the publication of his own results, and the right to participation in the formation of the administration and the receipt from it of a complete report on its activity. For all the possible diversity of charters, which follows from the specific nature of work in different fields of science, only those, which pose as the basic goal the conducting of scientific research and recognize the fundamental rights of the scientist, the scientific collective, and the scientific council, can be recognized by the community.

The institutes should send representatives as delegates to professional associations and to the congress, hold elections of the scientific councils, and so on.

The presented set of measures makes it possible to restore feedback in the system of the coordination of the activity of the scientific community.

The normal operation of the system of academic institutes under the conditions of the market is possible only in case of a sufficiently developed legal base, of which **THE LAW ON INTELLECTUAL PROPERTY** can constitute the basis. The basic goal of the law is the protection of copyrights and the rights of the author to the use of the result of creative activity regardless of the

method of financing. The law should also guarantee the rights of all legal and natural persons, who have made their resources available for carrying out scientific activity.

Subsequent legislative activity has as a goal the development of a set of laws on science under the conditions of the market, which create a favorable environment for creativity (including making provision for a number of tax credits for funds that finance basic research, particularly in the area of foreign exchange assets).

The Charter of the Academy of Sciences (as a community of academicians) and the Charter of the Union (Association) of Institutes, which not only describe the structure of the association, but also regulate property relations, may become important units in the set of standard documents that regulate scientific activity.

THE PROPERTY, which is being used by the Academy of Sciences, CAN BE DIVIDED INTO:

- state property (objects that are national property), which is under the management of the Academy of Sciences;
- academywide property (objects of joint use of the institutes: libraries, publishing houses, important scientific tools, houses of creativity, and so on), which are specified by a list and are under the management of the congress;
- institute property (the building, the parcel of land, equipment), which is under the management of the scientific collective in conformity with the charter of the institute;
- individual property (grants, contract assets and the equipment acquired with them), which is the private property of the scientist or the collective property of the scientific group.

After the registration of the charter, which regulates property relations, the association of institutes should be open for the withdrawal and admission of institutes and individual laboratories, which ensures real integration with the higher school and applied science and guarantees the possibility of establishing similar associations. The financing of the activity of the association can be carried out by means of state support or on the basis of the principle of cost recovery. In the latter case complete commercialization, mass reductions, and to a significant extent the loss of the opportunity to engage in basic research are inevitable.

Support can be effective, provided it is given for a guaranteed period and is distributed by the community itself through manifold funds and expert councils under the conditions of glasnost. It is obvious that the state along with the support of the community (base financing) will influence science policy, allocating special-purpose assets for the necessary programs, projects, and so on. At present the emphasis should be placed on base financing. With the gaining of experience in the

organization of competitions the emphasis, apparently, will shift in their favor. For the guaranteed protection of the state assets, which have been allocated to basic science, against their use in other areas and the accurate accounting of these assets it is expedient to establish the State Basic Research Fund, which is filled by a separate line of the state budget.

At the same time it is expedient to encourage the establishment around institutes of the Academy of Sciences of firms, which specialize in the area of the introduction of scientific developments and deduct a portion of the profit for the benefit of basic research.

The system of funds, which are available to individual researchers without any administrative consultations, should become a most important component of the system of financing. The existence of such funds would create a real base for the pursuit of an intelligent social policy in the sphere of science. Let us state the fact that the social protection of scientists, who are engaged in basic research, is significantly less than that of any other categories of civil servants (physicians, teachers, and so on), since for scientists a strike is ineffective. The establishment of professional unions of workers of science, which are occupied with social protection and take into account the specific nature of scientific labor, is all the more necessary.

One of the few real means of the self-protection of the scientist, which does not lead to the loss of skills, is to go abroad. However, only in rare cases does the scientific associate succeed in retaining his theme. On the national scale the brain drain is leading to the weakening of the intellectual potential of the country, but the consequences of this process are imperceptible in a short time and, therefore, it is easy to ignore them. It is also necessary to note that it is more preferable to look after scientific personnel abroad, keeping in mind the possibility of the return of scientists after the crisis is over, than to lose them completely due to the collapse of the economy.

To make the search for workplaces in scientific and engineering specialties easier first of all in our country and only later abroad the establishment at the Academy of Sciences of a labor exchange and a system of the retaining of personnel (today retraining in economic specialties is particularly effective) and the establishment of an intellectual property exchange are expedient. The indexing of the incomes of certified scientific associates should be carried out on the same level as for servicemen.

Taking into account the realities of the general crisis, it is impossible to solve the problems of the protection of basic science in Russia without its integration in world science. To speed up this process a breakthrough in the information blockade, which appeared as a consequence of the image of the enemy on both parts, is necessary. The establishment of an information database on foreign funds, including the procedure of applying to these

funds, as well as the development of standard principles of the establishment of international scientific collectives are expedient.

The implementation of the presented approach is impossible without concerted actions with organs of power. The formation of a science lobby in the soviets of all levels is necessary for the improvement of interaction.

An Ukase of the RSFSR President, which provides for:

- the establishment of a Science Council under the President of Russia;
- the establishment of a State Basic Research Fund, which protects the assets, which are allocated for science, against inflation and against use for any other purposes;
- the support for 1992 of the system of institutes of the Academy of Sciences and laboratories at higher educational institutions, which conduct basic research, through base state budget financing;
- the assurance of the integrity and preservation of the property of institutions of the Academy of Sciences and the exemption of their parcels of land from rent;
- the exemption of scientific institutions from taxes on foreign exchange assets, which are channeled directly into basic research, and so on,

could become an urgent step on the part of the Russian authorities, which are aimed at supporting basic science.

11. The indicated steps are capable of only temporarily halting the disintegration of the scientific community in Russia. Conscious joint actions of the scientific community and the authorities are necessary for the elaboration of basic solutions. For the purpose of discussing the plans of reforms of the organization of science in Russia it is proposed to convene a conference of scientists of the Academy of Sciences as the first stage of the congress of scientists of Russia. The conference can achieve its goal only in case of the careful preparation of the drafts of documents in working groups and their active discussion in scientific collectives.

12. The proposed approach is not the only possible one, presumes the in-depth study of the individual assertions, and is being submitted for discussion as a draft. Only the comprehensive and general discussion by scientific collectives of any plans of reforms forms the necessary moral base of the revival of science.

Malyshev Interviewed on Academy of Sciences Political Maneuvering

927A0083A Moscow POISK in Russian No 38 (124),
13-19 Sep 91 p 3

[Interview with Chairman of the RSFSR State Committee for Science and the Higher School Nikolay Malyshev, member of the RSFSR State Council, by POISK

correspondent Ye. Ponarina under the rubric "A Topical Interview"; date and place not given: "The Sovereignization of Science? This Is Nonsense"—first two paragraphs are POISK introduction]

[Text] The empire has collapsed. But the same intelligentsia and student body, who with the determination of doomed people fought during the August days for the freedom of the individual and the independence of Russia, will, it appears, be the first to find themselves under its rubble. The fever of sovereignization is no longer heating the blood, but is shaking the entire body of domestic science and the system of education.

What is the Russian government thinking of doing in connection with this? What is the point of view on what is happening of the leadership of the State Committee for Science and the Higher School of Russia? Today Chairman of the RSFSR State Committee for Science and the Higher School Nikolay Malyshev, a member of the RSFSR State Council, answers these question of our correspondent, Ye. Ponarina:

[Malyshev] The situation is very uncertain. For example, the most powerful scientific and educational potential is concentrated on the territory of Russia. If we were to declare that this is only Russian property, all the republics would lose. They, naturally, are alarmed. It is possible to say: You are yourselves to blame, you, after all, declared independence. But this would sound like malicious delight. After all, we all understand: Independence in words is not at all the same as in deed.

The situation of the USSR Academy of Sciences is very complicated. A number of members of the presidium of the USSR Academy of Sciences and academicians decided to transform the USSR Academy of Sciences quickly into the Russian Academy of Sciences. In essence, to change the sign. Here the demands to halt the election process and the organization of the Russian Academy of Sciences and to transfer all the property of the USSR Academy of Sciences immediately to the jurisdiction of Russia were advanced. Several members of the presidium—Vice Presidents G. Mesyats and V. Koptuyug—bluntly object to such a maneuver. And correctly so: To be turned given the same stagnant structure into the Russian Academy is not only to drag the old problems into the new life. This is to trample upon the principles, which were formulated by the Supreme Soviet of Russia and conform to the expectations of people from the provinces, from the regions.

The process of organizing the Russian Academy is taking place, after all, through regional centers, where electors have been nominated and programs have been specified, where people are already beginning to file for the competition for the Russian Academy. And to cancel all this is to make it possible with a single gesture to reject scientists from the provinces. The leaders of the USSR Academy of Sciences intend to prevent the Russian Academy from being established and very quickly, on the crests of the waves of the revolution that has

occurred, to occupy key points in the management of science and again to live quietly, just as they had lived.

It is hard for me to say how this process will develop. But I believe that we should first of all direct our attention to the regions. One must not divide science into basic—capital—science and applied—regional—science. It is unified. And before carrying out any reorganizations, it is necessary to understand what the national and basic programs are, what investments are required for them, and whether one should take all the property of the USSR Academy of Sciences into Russia.

Well, how is one to take Dubna, which was built with the money of the entire country? Or the space programs? Will everything together with Baykonur now pass to Kazakhstan? One must not take offense and fuss about. It is better, without hurrying, to gain an understanding of the problem of the sovereignization of the material base of the USSR Academy of Sciences. This is a serious problem that requires much time for solution. Some conservatism is useful to science....

[Ponarina] Pardon me, we have already heard this. The leadership of the USSR Academy of Sciences for more than two years kept saying healthy conservatism, under various pretexts delayed the adoption of new charters of the USSR Academy of Sciences, the basic principles of the activity of scientific research institutes.... And what do we have? Thus far nothing has been adopted, democratization has not affected academic structures. Healthy conservatism when it came to the test proved to be a chronic illness, the paralysis of science. The interim and the interregnum will finally finish off the USSR Academy of Sciences, it will simply fall apart itself—people will leave for commerce or abroad.

[Malyshev] Yes, if nothing is done, everything will fall apart on its own. But if one sets up a group of people, which is capable of thinking over these questions and taking into account the interests of the republics, the Union, and even the world, it is possible to change the situation fundamentally.

[Ponarina] What would like to see this group be like?

[Malyshev] If not with respect to individuals, but with respect to structures...then we already have an example—this is the Committee for the Day to Day Management of the National Economy of the Country under the direction of I. Silayev. The directors of major basic and regional programs from all the republics should be included in such a group. For example, the programs for resource conservation, for biotechnology.... It is necessary to invite only prominent scientists, not necessarily executives of the Academy of Sciences, so that they could look quietly into what to do.

After all, the sovereignization of science is nonsense. Throughout the world it does not and will not exist. On the contrary, we should try to see to it that all our scientists could associate freely without borders.

And this is possible, provided vanities and haste do not break the remaining delicate ties. I believe: Our task is not to lose what we have and to create the conditions, under which we would become a civilized nation. How much time will be required for this? I am not an advocate of believing in miracles or miracle workers. Everything depends on people. It is difficult to raise a new intelligentsia, a new stratum of managers. No matter what the old managers are like, these are very experienced people. I have in mind not party functionaries, I have in mind managers of science, culture, and education, economic managers. This is the quintessence of the nation, the majority of them grew up in difficult hard labor. Believe me, to replace, for example, the manager of a large enterprise or scientific research institute, having put in his place simply an honest person, is to ruin the plant tomorrow. And people will be without work, while we will be without goods. In order to make a manager of a person, who wishes to become him and has the aptitude for this, 10-15 years are needed.

[Ponarina] Nevertheless rumors are going around that the newly elected academy will become the Russian Academy, while the old one—the USSR Academy of Sciences—will turn into an elite club of scientists....

[Malyshev] New, old. I would not use such words. The Russian Academy should bring in a fresh stream of people and ideas and help make science academic throughout Russia. While the union Academy should be transformed into something like the Royal Scientific Society of Great Britain or the U.S. National Academy of Sciences, where scientists gather in order to discuss results, to sum up results, to plan actions for the future, to determine priorities, to see what the level of research is abroad, and to give recommendations. "Club" here is the correct word. The USSR Academy of Sciences should become a coordinating and consultative body. But not a managing and not a financing body. The basic research fund of the country should remain for financing.

[Ponarina] But what will happen to institutes and universities?

[Malyshev] The state ones will remain such and all will be financed from the budget of their states. In accordance with the ukase of the president of Russia we will increase the financing of education by approximately twofold. Sectorial institutes, depending on what the sectors turn into (as a rule, they are turning into concerns, associations, and joint-stock companies), either will become a part of these concerns or will work on orders of enterprises. If there are no orders, they will be closed.

Yes, we will all have to go through the difficult time of realizing our own independence—people, collectives, and republics. But, I think, soon—at most in a year—we will all gather together again.

[Ponarina] Having choked on freedom?

[Malyshev] No, having plunged into the sea of problems. A small republic will not be able to solve them itself, without the union, in which it lived hundreds of years. It will be necessary to restore economic and cultural ties.

And it is necessary already now to be prepared for such a dialog. Therefore, it is necessary to leave, to part so that it would be possible later to return without shame, pain, and awkwardness.

Scientists Plead for Funds To Save Oceanographic Fleet

927A0139B Moscow LITERATURNAYA GAZETA
in Russian No 11, 11 Mar 92 p 12

[Article by Prof. V. Yastrebov, director of the Institute of Oceanology imeni P.P. Shirshov of the Russian Academy of Sciences and full member of the Academy of Natural Sciences, and Prof. A. Gorodnitskiy, head of a laboratory: "How Much Is a Foot Under the Keel?"—first paragraph is LITERATURNAYA GAZETA introduction]

[Text] The Institute of Oceanology of the Russian Academy of Sciences is among the top five such institutes in the world. But will it hold out under the gale-force attacks of the crisis?

The research ship Dmitriy Mendeleyev, which was completely prepared for the next geophysical expedition in the Indian Ocean, did not depart on its next trip. The plans of joint research with Indian, Canadian, and American scientists on the study of the structure of the ocean crust are being shattered. This ship just underwent a major overhaul in Finland, advanced navigation systems, multichannel echo sounders, and other equipment were installed on it. Everything was paid for not with wooden rubles, but with "hard" currency. And all this is rusting while sitting idle.

Not just the Dmitriy Mendeleyev is grounded—all the ships of the Institute of Oceanology of the Russian Academy of Sciences, including the Academician Mstislav Keldysh, a carrier ship, on board which the unique Mir deep-water manned vehicles have frozen in inactivity, have been forced to lie up. The same vehicles, by means of which in recent years record depths were reached when studying the world ocean, the largest deposits of cobalt, nickel, and copper were discovered, and the submarine Komsomolets, which was lost tragically, was found. The academy has no currency.

Against the background of the intense political disputes and economic problems this as if does not worry anyone: neither the government nor the academy leadership. Do they have time now for the ocean? They are forgetting here that the miser pays twice. More than half of the most vital terrestrial problems today are solved in the ocean. These are minerals, the reserves of which on dry land are running out, food for our hungry country, the air which we breathe—its cleanness depends on the degree of pollution of the world ocean—and much, much more.

One might think that the matter reduces to the banal solicitation of finances and especially currency. But this is not the case. We ourselves can throw ourselves a life ring. The Institute of Oceanology has a large amount of its own capital: first-class research ships and unique equipment, with which one can easily solve a large number of problems. Last year alone we were able to conclude a large number of profitable contracts for jobs with foreign partners. The search for the famous Titanic

showed the possibility of the effective combination of commercial voyages, which yield revenue, with the solution of scientific problems. But no such luck. Although the institute is formally a shipowner, it cannot jump over the reinforced concrete bureaucratic structures of the presidium of the Academy of Sciences, which were built to last forever. Thus far the earned dollars are in accounts of Canadian firms, the institute cannot get them.

What is the solution? Give the institute (and not just it alone) commercial independence and the right to establish independent commercial enterprises and joint ventures? Or settle in earnest, in a state way the difficult questions of the budget financing of basic science?

Academician Pleads for Funds To Save Russian Science, Culture

927A0139C Moscow IZVESTIYA (Morning edition)
in Russian 11 Mar 92 p 3

[Article by Academician Boris Raushenbakh: "Domestic Science and Culture Are Doomed, If We Do Not Begin To Save Them All Together"]

[Text] We are going through difficult times: the decline of production, a half-starved existence for millions of people, the shortage of everything most essential. Against this background the deplorable state of domestic science and culture somehow has taken a back seat.

Spiritual food is not earthly food and as if can wait a while. There is a dangerous misconception: The harm, which was once done to science, will then be felt for decades. But something may also prove to be altogether irrecoverable.

During the 1920's and 1930's our country was the world leader in genetics. The works of Academician Vavilov served as the standard for the entire scientific world. Lysenkoism destroyed genetics as a science, latter they rehabilitated it, genetics was revived, but the lead of our scientists was hopelessly lost.

Today the state in practice has ceased to finance science and culture. There is barely enough money for the starvation wage of scientists. If you add up all the income of an academician, the obtained total will be less than the salary of a trolleybus driver. What is one then to say about young colleagues? "Comrade scientists, docents with candidate degrees" today are all in massive research, which, alas, is not creative. There is one problem: to earn a little extra on the side. What kind of evaluation does the state, in which the best minds, the brain of the nation, are forced to get the job of building stockyards, deserve? This is not yet a troglodytic state of society, but the first step has already been taken in this direction.

Scientists need not only a wage, but also laboratories, pilot plants, instruments, reagents, and the like. Without this they are not scientists. Industry today is helping only

those few people who are of direct utilitarian benefit to it. Basic science, the material benefit from which it is impossible to feel with your hands, is suffering greatest of all. But without it before we know where we are, we will slip into the category of underdeveloped countries and, perhaps, will not longer ever be able to recover again.

Many scientists are now heading for the West, yet not for "sausage," as some people believe, but for the opportunity to realize themselves and to conduct scientific work fruitfully. In our country these possibilities are dwindling before your eyes. ***I do not think that the Russian Government does not understand this. And nevertheless it does not have money for science and culture. Everything seems to be correct: Given the present economic collapse, when everywhere there are sheer gaps which it is necessary to patch immediately, there is no time for such "delicate matters." It is merely that without them no developed state can exist.

Whether you like or not, it is necessary to seek reserves of the reduction of budget spending in favor of science. Of course, not to chop carelessly, but to do it sensibly. In the same, for example, military area we should maintain at any price the positions, in which we are on the same level as the United States or even lead it. It is possible to cut back series-produced military equipment. The Americans are interested in slowing down our development where we are beyond them, we simply must not allow this and on no account reduce the "gross"—this means, perhaps, to halt the development of advanced technologies. Unfortunately, at times dilettantes from politics, who do not want to listen to professionals, decide these complicated issues.

Returning to science and culture: If the Russian Government has left them to the mercy of fate, thus, it is necessary to save them all together, while it is not too late. First of all commercial structures can do much here. Our Cultural Incentive Foundation (the founders are domestic culture and peace funds jointly with the American Szoros Foundation) so far has been fighting single-handed.

By the end of last year it had become clear that neither the Russian Academy of Sciences nor universities will receive a cent to subscribe to foreign scientific journals for 1992: The government did not have money for this. For scientists it is a catastrophe: This actually means the exclusion of our country from the world scientific community. It is impossible to be active in science without knowing what your colleagues in other countries are doing. We appealed to the cofounder of our foundations, George Szoros, who allocated \$100,000 for subscription. Together with the presidium of the Academy of Sciences we specified 162 titles of scientific journals—this, of course, does not cover all our needs, but it is at least something. Even though each publication will be in one copy: It is now possible to make copies of the most interesting articles and to send them to interested scientists.

We decided to allocate 7 million rubles to domestic fiction and popular science journals, which financial failure threatens today. Taking into account that science and culture are inconceivable without education, we plan in the near future to begin the publication of books and pamphlets for higher educational institutions, which are of limited printing and are obviously unprofitable. Particularly in economics, business, and other areas, where we have a traditional shortage, if not a vacuum. None of our domestic publishing houses wants to print such literature, today everyone has one criterion: profitable—unprofitable. Therefore, the initiatives of private commercial organizations and foundations can if not save science and culture (no private philanthropists are capable of this), then at least help them a little to survive.

The budget of our Cultural Initiative (if you calculate it in dollars) does not exceed 5 million a year. When they "cut off the oxygen" to our science and culture, we had to take immediately a portion of the assets from other planned projects. We had to, as I have already said, go cap in hand to Szoros.

Incidentally, they often ask us: What does the American billionaire gain from engaging in philanthropy in a foreign country? I will try to answer.

George Szoros, an emigrant from Hungary, left his homeland without a penny in his pocket immediately after the war in order to try his luck in the West. And not without success. His present credo: While a person is a millionaire, he continues to earn money, when he becomes a billionaire, he begin to spend it for the benefit of society.

About 10 years ago Szoros founded the first philanthropic foundation in his homeland, in Hungary. Then the turn of other then socialist countries, including the USSR, came. Szoros has a particular partiality for Eastern Europe, he often travels about these countries and at times brings at his expense leading economists and lawyers—to help us eliminate at little more quickly economic and legal illiteracy and to begin to live like human beings. If gain motivated him, he could invest his millions, which he is spending for philanthropic purposes, in a profitable business. But just like that he allocates assets without asking on what they are being spent. In his opinion, the members of the boards of foreign foundations and the citizens of the countries, which receive his assets, know this better. He is something like a missionary, who is interested in finding out how capable he is of contributing to the development of progress in Eastern Europe.

And whereas earlier primarily economics was the sphere of application of his efforts, today Szoros has also taken an interest in science. In particular, he is convinced: One must not allow Russian basic science to fall to pieces—this would turn into a loss for the entire world. And,

finally, for those, who seek mercenary motives in everything, I will say: According to U.S. laws philanthropic activity excludes the derivation of profits or other material gains.

But the Cultural Incentive Foundation, which is financed by Szoros, will not solve single-handed all the urgent problems. The hope is that in Russia and abroad the organizations and foundations, which are not indifferent to the state of affairs in the area of our intellectual wealth, have not yet disappeared. It is a pity to see how commercial structures, which at times, obviously, do not know where to invest surplus assets, organize festivals, which hardly anyone needs, instead of beginning to collect money for what is today most important of all for us—the saving of domestic science and culture.

Supreme Soviet Approves Budget for Russian Academy of Sciences

927A0133A Moscow POISK in Russian No 8 (146),
15-21 Feb 92 p 1

[Article by Oleg Basalin under the rubric "At the Center of Events": "There Is Enough For Maintenance..."—first two paragraphs are POISK introduction]

[Text] Only during the second half of January was the state budget approved by the Supreme Soviet of the Russian Federation. All those carried on the budget for a month and a half have been in a "slack state"—it is unknown on what assets they are living.

At the Academy of Sciences the "financial fog" has finally dissipated. At the last meeting of the presidium Aleksandr Konoshenko, chief of the Main Economic Planning Administration of the academy, reported on the draft of the plan of the financing of institutions of the RAN [the Russian Academy of Sciences] for the first quarter. Here are the main points of his report.

- In all 890 million rubles [R] will be allocated from the state budget to the Russian Academy for the first quarter.
- For the entire year, in conformity with the budget projections made in the Ministry of Science, the Higher School, and Technical Policy, it was envisaged to allocate to the academy R8.3 billion. But after the consideration of this question in the Supreme Soviet it was decided to channel R1.4 billion of this amount into the financing of the Basic Research Fund. Thus, R6.9 billion were left in the draft of the budget of the academy. Calculations show that this sum to no extent corresponds to the level of financing last year in the prices of this year.
- For the first quarter it is planned to allocate to the academy only about 15 percent (and not 25 percent) of the total annual amount of financing—in this way they attempted to prevent "the planned increase of prices." The increase of prices has proved to be not "smooth," but "landslide-like." A sharp increase of

the cost of thermal energy and electric power and of services on the upkeep of buildings and their maintenance has occurred.

- All this made it incumbent to adjust the draft of the plan of financing for the first quarter. **Nearly all the allocated assets will be used for covering the expenditures on wages and on the upkeep of buildings.** This also had to be done at the expense of the outlays on the conducting of scientific research work.
- **The presidium of the RAN made a number of decisions on the increase of the remuneration of the labor of scientific personnel. This required the substantial increase of the wage fund.**

In January the wage fund came to R75-76 million. For the entire quarter it is planned to allocated R360 million.

- The institutions, at which assets of the former State Committee for Science and Technology, which were allocated for various state scientific and technical programs, as well as economic contract jobs made up a rather large share in the total amount of financing, found themselves in a difficult position.

The programs of the Ministry of Science, the Higher School, and Technical Policy—the successor of the State Committee for Science and Technology—thus far have not yet been launched and their financing has not been started. A sharp decline of the volumes of contract work is also being observed. The budget of the academy, as much as we would like, will not be able to close these gaps.

- When preparing the draft attempts were made to avoid obvious disproportions in the financing of the departments of the RAN.

It was possible to increase substantially the level of financing of the general biology, physiology, and general and technical chemistry departments, which earlier had fallen considerably behind.

- **Steps aimed at the reduction of the expenditures, which are not connected with the fulfillment of scientific research, are set forth in the draft.** The sources of additional financing are specified: cost accounting activity, the attraction of the assets of commercial structures, and participation in various foreign funds.

Russian Federation Science Budget for 1st Quarter 1992

927A0145A Moscow RADIKAL in Russian No 5,
Feb 92 p 10

[Article by Marina Lapina: "Money for Science"]

[Text] The Supreme Soviet of the Russian Federation has approved the spending on science for the 1st quarter of 1992 with allowance made for an inflation factor of 13 percent. The initial figures, which were incorporated by

the Ministry of Science, the Higher School, and Technical Policy of the Russian Federation in the draft of the annual budget for science for 1992 (see RADIKAL, No 1, 1992), in practice did not undergo changes with the exception of some negligible redistribution of internal items of expenditures.

In particular, the Russian Academy of Sciences, as should have been expected, received for the first quarter 1.247 billion rubles. Some items of expenditures, apparently, will actually begin to "work" only toward the end of the first quarter and during the second quarter, which, of course, aggravates the already deplorable situation. This pertains, in particular, to the Basic Research Fund

of Russia, the statute on which exists for the present only in a draft. The candidates for the post of chairman of the council of the fund are now being discussed. Academician A. Gonchar, first vice president of the RAS [the Russian Academy of Sciences], who will be commissioned to form in a two-week period the council, the composition of which it is already now easy to guess, will most likely become him. Incidentally, no one is making a big secret of this. As RAS President Academician Yu. Osipov confirmed at the first ceremonial press conference of its leadership, "the same academicians will belong to it." The same ones, which ones, all the same, are these? It remains to put one's trust in the wisdom and common sense of the future chairman, which you will not deny Gonchar.

Breakdown of Assets of the State Budget for Science for the 1st Quarter of 1992

	(thousands of rubles)
Total for the Russian Federation	9,979,000
including:	
A. For scientific organizations of ministries and departments	6,175,495
of them:	
Priority directions of scientific and technical progress	4,139,764
including:	
Basic research	2,014,864
of them:	
basic research fund	358,240
State, interbranch, international, and other scientific and technical programs and projects, which are of the greatest national economic importance	2,124,900
B. For scientific organizations of ministries and departments of the defense complex, which are conducting research and development for civilian purposes	3,803,505

Statistics on Scientists Wages Published

927A0139A Moscow RADIKAL in Russian No 46,
27 Nov 91 p 4

[Article: "In the Mirror of Statistics"]

[Text] Until recently the former State Committee for Science and Technology, which dealt with questions of scientific and technical forecasting, had rather complete statistical information on science—actually on all its sections. Now the State Committee for Statistics—the traditional supplier of statistical information—like the majority of other departments has been forced due to the lack of assets to limit the sphere of its activity. And

science, of course, has come under this reduction. Now the data on all the indicators, which have a bearing on it, are rather fragmentary and it is more and more difficult to collect them.

True, the staff members of the former State Committee for Science and Technology are succeeding for the present in tracking the trends of the increase or decrease of the basic indicators on the basis of their own information and in part of the same State Committee for Statistics. The latest data, in particular, on the wage of scientific personnel of various sectors of the national economy have been made available to RADIKAL.

We thank B. Motorygin for the received information.

Sectors	1990	6 Months of 1991	6 Months of 1991
	Average Wage	Average Wage	against 1990
	(rubles)	(rubles)	(percent)
Machine Building Complex	360	416	115
USSR Ministry of Heavy Machine Building	384	438	114
USSR Ministry of Electrical Equipment Industry and Instrument Making	357	406	114
USSR Ministry of Machine Tool and Tool Building Industry	349	414	119
Chasprom Interbranch State Association	402	442	110
USSR Ministry of Automotive and Agricultural Machine Building	349	400	115
Strommash Interbranch State Association	343	495	144
Kvantemp Interbranch State Association	311	415	133
Energomash Interbranch State Association	350	419	120
Kriogenika Interbranch State Association	359	456	127
Antikor Interbranch Scientific Technical Complex	345	430	125
Elektromera Interbranch State Association	382	389	102
Kommash Interbranch State Association	410	521	127
Neftekom Interbranch State Association	333	406	122
Prompribor Interbranch State Association	344	345	126
Tekhnoelektronmash Interbranch State Association	341	416	122
Zashchita Interbranch State Association	243	223	92
Kompyuter Interbranch State Association	304	327	107
Metallurgical Complex	396	418	106
USSR Ministry of Metallurgy	388	405	104
Glavalmazoloto	543	651	120
Fuel and Power Complex	383	454	118
USSR Ministry of Power and Electrification	340	388	114
USSR Ministry of Atomic Power and Industry			
USSR Ministry of Coal Industry	339	415	122
USSR Ministry of Petroleum and Gas Industry	437	498	114
USSR Ministry of Construction of Petroleum and Gas Industry Enterprises	408	527	129
Gazprom Concern	401	474	118
Chemical and Forestry Complex	349	393	113
USSR Ministry of Chemical and Petroleum Refining Industry	339	384	113
Agrokhim State Association	378	395	104
Tekhnokhim Interbranch State Association	374	410	110
USSR Ministry of the Timber Industry	355	406	114
USSR Ministry of Medical Industry	304	421	138
Transportation	428	476	111
USSR Ministry of Civil Aviation			
USSR Ministry of Maritime Fleet	428	476	111
Construction Complex	373	442	118
USSR Ministry of Transport Construction	375	421	112
State Committees for Construction of the union republics			

Sectors	1990	6 Months of 1991	6 Months of 1991
	Average Wage	Average Wage	against 1990
	(rubles)	(rubles)	(percent)
Ministries of Construction of the union republics			
Soyuzstroy State Association	373	448	120
Others	317	382	121
State Committee for Light Industry	371	547	147
USSR Ministry of Fish Industry	368	464	126
State Commission for Food	302	354	117
USSR Ministry of Water Resources Construction	301	318	106
Ministries of Land Reclamation and Water Resources of republics			
Academies of Sciences of union republics			
Organizations subordinate to the Bureau for Machine Building	387	400	103
Total for Science	358	412	115
RSFSR	349	421	120
Ukrainian SSR	307	367	119
Belorussian SSR	296	380	129
Kazakh SSR	286	339	119
Defense Complex			

*Data rounded off to the ruble (editor's note).

Report on Russian Scientists Seeking Work in Japan*927A0131B Moscow TRUD in Russian 19 Feb 92 p 3*

[Article by TRUD correspondent S. Bunin (Tokyo): "An Application to the Japanese Personnel Department. Our Scientists Are Attacking the Land of the Rising Sun With Requests To Be Hired"]

[Text] A stream of letters from scientific personnel from the countries of the former Soviet Union is swamping universities, scientific research institutions, and other organizations of Japan, which are involved with basic science. Reporting on this, the newspaper YOMIURI SHIMBUN emphasizes that everyone has the same request: Is it possible to help with a job?

According to the testimony of Prof. H. Ikegami, a specialist in nuclear physics, the board of directors of just the Research Institute for Thermonuclear Reactions attached to the Ministry of Education of Japan in the past month has received about 20 similar appeals, including from the famous Lebedev Institute in Moscow. Many applications have also piled up at the universities of Waseda and Tokai.

Many of the applicants are appealing directly to their Japanese colleagues, using the addresses and fax numbers, which they acquired at one time during business trips to various international conferences. In all, according to estimates of the newspaper, each of the scientific research institutions of Japan on the average accounts for one or two applications from the former Union with the request for job placement—on any terms.

Another wave is also coming at the same time: an excessive number of applications, which exceeds the capabilities of the organizers, for participation in various kinds of scientific symposiums, the conducting of which is planned in Japan in the near future. Many Soviet specialists see in this the last opportunity to try their luck abroad in face of the real threat of the closing of their institutions.

The majority of Japanese scientists, to whom desperate letters of this sort with a cry for help have been addressed, are completely perplexed. It would seem embarrassing to refuse, but at the same time hardly any of them has sufficient assets to hire and place them. Not to mention the lack of unoccupied vacancies on the list of staff of Japanese universities.

An expanded conference, which was convened on the initiative of the special committee of the ruling party of Japan for the expansion of international cooperation and the strengthening of the foundations of basic scientific research, was devoted to this urgent problem. Everyone who spoke at it was unanimous: In the interests of the development of the basic sciences Japan should follow the example of the United States and Western Europe,

which are willingly accepting unemployed Soviet specialists, and should make a more active contribution to the matter of the job placement of valuable personnel from the former Soviet Union. This particularly concerns such promising areas as space research. One should also not forget, one of the conference participants—a worker of the Institute of High-Energy Physics—stressed, that many Japanese scientists after the war underwent lengthy practical training in the United States. The knowledge, which was acquired by them owing to such assistance from across the ocean, subsequently did an invaluable service in the achievement by Japan of the present economic heights.

Nuclear Scientists Comment on 'Brain Drain'*927A0131C Moscow ROSSIYA in Russian No 6 (65), 5-11 Feb 92 p 8*

[Article by ROSSIYA correspondent Sergey Belkovskiy (Chelyabinsk-70): "I Am Exchanging Chelyabinsk for Iraq. Is Such a Version Possible? Atomic Scientists Themselves Answer the Question"—first paragraph is ROSSIYA introduction]

[Text] The drain of Soviet "nuclear brains" to Third World countries will enable the latter to make appreciable progress in the direction of developing their own nuclear weapons. Such apprehensive forecasts have become more frequent in recent times on the pages of foreign publications. It is possible that in this way the western countries and the United States are trying to direct our attention to the problems of atomic scientists, the discussion about whom in the country of Chernobyl causes irritation more often than understanding. And still this is the sector, which the process of decay, which has encompassed the former Union, should not touch. Atomic decay may become most dangerous. Both for us and for the world that surrounds us.

The VNIITF is located in the Urals in the "closed" city of Chelyabinsk-70, which is surrounded by barbed wire. The gate of the city is a regimental command post, here armed soldiers meet you. VNIITF is expanded as Vsesoyuznyy nauchno-issledovatel'skiy institut tekhnicheskoy fiziki [the All-Union Scientific Research Institute of Technical Physics]. Owing to it this city also appeared in the Southern Urals.

We have grown accustomed to believing that large-scale science is made either in Moscow or in other capitals. Until recently they did not write in newspapers about Chelyabinsk-70, a town the size of a rayon center, you will not find this city on the map. However, the cream of nuclear science is assembled precisely here. Here and also in Arzamas-16....

There was a time when they called the residents of "70" "the chocolate people": From here they supplied relatives on the "mainland" with produce and things. Now the former abundance has disappeared and everything is strictly through coupons and ration cards. From what is

left from the good old times there is the amazing cleanliness on the streets, which are literally clogged with motor vehicles (in the per capita number of them another such city will hardly be found in Russia). And in the level of crime Chelyabinsk-70 is a fortunate city. It is not terrifying to set out alone into the small pine forests, which are scattered like dense little islands along the housing tracts. While it is a stone's throw to Lake Sinar. In the summer you go sunbathe and swim. And the air is clean and fresh....

The ROSSIYA correspondent is one of the first journalists, who visited this city and met with the people, whom the classification "secret" had fenced in for long years. Before it would have been impossible to interview them.

"Now we can give the person we are talking to our own calling card," I hold in my hands a rectangle of cardboard and read: "Vadim Aleksandrovich Simonenko, department chief, doctor of physical mathematical sciences."

"Recently in Kiev I met American scientists, and they asked bluntly: How possible is the drain of specialists in nuclear physics to Third World countries?" relates Simonenko, "so that I known about such anxiety, which exists abroad, not only from the newspaper.

"Our nuclear physicists in contrast to western nuclear physicists are not narrow specialists. Although we are theorists, we always work alongside designers and experimenters and are present at the plants during assembly."

The drain of nuclear physicists abroad is for the time being, perhaps, more a theoretical problem, Simonenko believes, but its urgency may increase rapidly.

After people leave the "forbidden zone," you had better believe that their chance of finding themselves abroad increases sharply, says the man I am talking to. The main thing is to leave Russia, and, having found oneself, for example, in Ukraine, it is also a simple matter to get to Poland. And beyond....

I asked the colleagues of Simonenko a direct question: Would they leave after receiving an invitation to work abroad?

"As far as I know, none of my acquaintances has received such an offer," replied A. Antonov, a design engineer of the first category. "There was always individual selection to our institute, as a result people devoted to the matter and, as they say, with a sense of duty assembled here. But earlier we took pride in the fact that we were doing a responsible job for the state, and this was sensed if only from the fact that the standard of living in Chelyabinsk-70 was significantly higher than in other places. Now my salary is 838 rubles [R]. That of other people is even less. We are becoming all but social outcasts."

"The drain of specialists from the institute has already begun. For the present to the 'mainland.' But it is all the same to us, understand, where designers and skilled

workers flee—abroad or to the neighboring city of Kasli," says V. Nikitin, deputy director of the VNIITF. "People do not become real specialists in our sphere straight from undergraduate school, about 10-15 years of practical work are needed. Last year—there had never been such a thing here—more than 100 people were dismissed. For the time being they are mainly workers. But they, believe me, are also individual people."

S. Gagarinov, chairman of the trade union committee of the VNIITF:

"At our request the cost of the minimum basket of consumer goods in Chelyabinsk-70 was calculated: It turns out to be approximately R1,100-1,200 a month, based on prices for the first half of January."

How is one to provide these people if only with a normal wage?

"Now much is being said about conversion," V. Simonenko believes, "but I would like to direct attention to the fact that conversion developments, which for the present are being spoken about, require far fewer intellectual expenditures from scientists than our previous operations, which were connected with weapons development. Here, in Chelyabinsk-70, there are scientists who are capable of solving global problems. So it is necessary to replace for them one task with another, but no less a large-scale one...."

From the Editorial Office

Back several years ago at the behest of the directors of Soviet propaganda from Old Square the theme of the "brain drain" was included in the category of themes that expose the predatory policy of the capitalist West with respect to the so-called developing countries of the world. But here is what is surprising: Almost none of the people, who fulfilled the social assignment of the ruling party, found time to state clearly the reasons that prompt "eggheads" with different skin colors to leave their native land and to try their luck in foreign parts. But they were also obvious at that time: The high standard of living in the West and the opportunity to realize their talents attracted them.

Today this problem has directly affected our republic and first of all its military-industrial complex, which has concentrated in itself the best Russian "brains." And what of it? Were we prepared for that development of events? Unfortunately, we were not. Moreover, we panicked: Oh, they will leave, oh, they will make a bomb for one dictator or another, forgetting that a trend does not yet emerge from isolated facts, but then their generalization can bring about mass psychosis among those people, who have clear heads and skillful hands. And, therefore, let us first of all calm down and begin to think about how under the conditions of the social crisis we can avoid the mass exodus of our talented people to countries with a more favorable social climate and bearable living conditions. Moreover, everyone will deal with this on his own

level: the presidency, the government, the administration of regions, the executives of works and scientific research institutes, the mass media. The people incapable of thinking and suggesting steps, which are equal to the present situation, should simply leave the points of decision making. Otherwise we not only will not revive Russia, but will also push the cream of the nation beyond its boundaries.

[Signed] V.N.

Poor Qualifications Underestimated Factor in 'Brain Drain'

927A0131D Moscow *RADIKAL* in Russian No 48,
11 Dec 91 p 3

[Article by Aleksandr Allakhverdyan, the Institute of the History of Natural Science and Technology of the USSR Academy of Sciences: "How Good It Is That Zvorykin Left..."—first paragraph is *RADIKAL* introduction]

[Text] At one of the recent conferences on the problems of the organization of science during the discussion of the report I was asked the question: "Now people are talking a lot about the 'brain drain,' but is there anyone to 'drain,' for our science lags greatly behind western science?" This, it seems, is the opinion not of one person, it is implanted in the consciousness of many people. The notions of the lag of our science began to be expressed particularly actively in recent years, when we began to know more and better about the defects of our science, about the crisis state of the economy, and about the slump in many areas of human activity in the country. These notions automatically began to migrate and to be tried out also with respect to scientific activity and the effectiveness of the labor of scientists.

In attempting somehow to comprehend these statements, it is necessary first of all to differentiate the effectiveness of the activity of scientists in basic science and applied science. Many people—and not without reason—judge the later according to the degree of diversity of industrial goods, the quality of sold products, and their competitive ability on the world market. Although the fact that industry is not always ready to "swallow" good-quality applied developments is the fault not so much of applied scientists themselves as of the faulty system of economic relations.

Things with basic science are different and more complex. Here the situation remains for the present more favorable than in applied science. A number of sections of basic science enjoy in the world scientific community recognition and prestige, which you do not gain for no particular reason, by declarations. This is the opinion of not only the leadership of academic science, but also its rank and file members, those who make science, who from the experience of scientific cooperation with foreign research centers know this problem "from inside." For the present it is possible to group basic science, Prof. V. Rotar believes, with the few values that our science

has not yet squandered. In many natural science disciplines we are at a level comparable to the world level, true, it is a matter first of all of theoretical areas of knowledge.

The pointed and in many respects just criticism of science in our and also the foreign press of recent years concerns the situation primarily in applied disciplines, as well as the disciplines of the basic cycle, in which effectiveness depends directly on the quality of scientific apparatus, technological equipment, and materials for the organization of experiments. Western experts, when evaluating the creative climate in our scientific community, also note its ideologized nature and the scarcity of genuine debates and scientific polemics (particularly in the humanities disciplines) as factors which hinder creative scientific activity. At the same time American Sovietologist H. Balzer is calling upon his western colleagues to treat in a more reserved and cautious manner the, as he put it, "orgy of criticism" that recently broke out in the Soviet press: "But they were as if still speaking after 70 years, during which they did not dare say anything critical, provided they were not sitting under a table with disconnected telephones. But in their scientific tradition there still are impressive and valuable things. I am not sure that they could have thrown the baby out with the bath water, even if they had wanted to."

It is possible to cite many examples that testify to the high qualifications of our scientists. But this, under the conditions of our warped reality, cuts both ways. On the one hand, this gives a sense of pride in domestic science and reflects the high level of scientific skill, but, on the other—under the conditions of the crisis of the economy and the substantial lessening of the attention of the state to basic science—is fertile soil for the "outflow of brains" abroad.

According to the data cited in the press, in "1989, 2,653 scientific associates of the USSR Academy of Sciences left for the West. This is fivefold more than in 1988." Moreover, scientists went abroad not only under contracts, but also "in search of happiness." The number of people who left academic institutes seems to be small, a little more than 2 percent of the total number of scientific associates of the USSR Academy of Sciences. However, the most talented and energetic portion of the young people, as well as scientists of "middle" age, who have achieved significant scientific results, are leaving. Moreover, specialists in the area of mathematics and theoretical physics are in the greatest demand.

True, it must be noted that these people far from always have adequate recognition in the homeland: Examples, when internationally famous scientists did not have the degree of doctor and, at times, even candidate of sciences, are known in scientific circles, notes Doctor of Physical Mathematical Sciences M. Monastyrskiy.

The sociological studies conducted by us at academic scientific research institutes showed that first of all

"generators" of ideas, research projects, and original methods—those who cannot fully realize their creative plans in the laboratories where they work—are leaving. For the real scientist material prosperity is, undoubtedly, an important, but not the "topmost" factor that forces him to go abroad. A professional scientific and sociocultural environment, which is conducive to the realization of the creative potential of the scientist, is of paramount importance for him.

Among scientists of academic institutes there are specialists who for some reasons or others cannot go abroad, but at the same time they successfully migrate, often of necessity (through the holding of more than one job or for a permanent job), to a cooperative, where the wage is tenfold higher than at a state institution. It is possible to understand them—the responsibility for the material conditions of the family makes them take this step and does not allow a portion of the scientific associates to "quietly lie low" in laboratories, especially when the market "has arrived." Under these conditions the loss of the skill of a scientist is inevitable; having worked two to three years in a cooperative, it is already difficult for him, as a rule, to return to "large-scale" science. For talented specialists, particularly young ones, this is at times a tragedy of life. And it is still unknown which is better—to go abroad and to try there to realize oneself somehow or to stay at home, to leave for a cooperative, to renounce thereby the creative aspirations of youth, and to bury one's talent. The lines of Okudzhava automatically come to mind:

How good it is that Zvorykin ¹ left

And invented television there!

If he had not left the country,

He would have, like everyone, gone to Calvary.

The reasons, for which scientists are leaving for foreign research centers or our scientific cooperatives, are far from exhausted by the ones that we have cited. They ought to become the subject of serious professional studies. However, in our country it turned out that the problem of the "brain drain" in recent years was first of all an object of "investigative journalism." The large press corps bears the main burden with regard to its study and interpretation. At the same time this vital problem so far has not found proper attention on the part of humanities scholars. It is possible to count on the fingers of one hand the exclusively scientific publications that rely on the results of theoretical and empirical research. The number of scientific research and investigative journalism publications, which are devoted to the problems of the "brain drain," is close to the ratio 1:100 in favor of the latter. Given such a balance of studies the problem of the "brain drain" will be presented again and again, its urgency and negative consequences for society will be emphasized, but at the same time it will not be studied in all its intricacies and interweavings, which are accessible only to the methods of scientific analysis. It is impossible not to agree with journalist Yu. Danilin:

"The 'brain drain'—a typical sign of these times—worries everyone.... The usual explanation: There is no housing, wages are low, and so on. Of course, it is so. But the feeling is that the trend threatening our science is not being studied by anyone and behind the statement of the fact there is a complete void."

But even the few studies of the problem of the "brain drain," which were conducted in 1990 within the framework of the "above-plan" academic program "Man, Science, Society," as of the beginning of 1991 were halted owing to the termination of the financing of this program.

And this happened—however paradoxical—as a result of the putting into effect of...the presidential Ukase "On the Status of the USSR Academy of Sciences" of 23 August 1990.

The main proclaimed goal of the ukase consisted in the creation of "favorable conditions for the further development of basic science" as an anticipatory step on the threshold of market chaos. The increase of the wage of scientific associates of academic scientific research institutes was envisaged by the ukase as one of the means of achieving this goal. Moreover, the increase of the wage was planned by means of additional assets from the state budget of the country.

The "price" of the increase of the wage of associates of the academy proved to be rather high. In spite of the ukase, not a kopeck was ever received from the state budget of the country for carrying out this action. But inasmuch as scientists already expected a wage increase, the leadership of the Academy of Sciences had no alternative but to meet their expectations. There were enough assets for a 35-percent increase of the "average" wage, although, notes I. Makarov, chief scientific secretary of the presidium of the academy, a 60-70 percent increase was envisaged. Still, by means of what assets did the wage increase occur? First of all the financial assets, which earlier had been allocated for the implementation of a number of "above-plan" academic programs, including the program "Man, Science, Society," came "under the knife." As of the beginning of 1990 tens of millions of rubles had been allocated for them with the prospect of continuation to the end of 1993. It is these assets (and, perhaps, some others) that were used for increasing the average wage to the level of R419 a month.

Thus, the presidential ukase, while having partially solved one problem, that is, the increase of the wage, unintentionally dealt a strong blow to and essentially halted the development of academic programs, which had already been implemented and were aimed at the development of new scientific directions and problems of basic science (so much for the creation of "favorable conditions for the further development of basic science," as was declared in the Ukase "On the Status of the USSR Academy of Sciences").

Returning to the problem of the "brain drain," it is safe to assert that its urgency will not subside, but will only increase in connection with the further liberalization of emigration policy in our country. And only the results of integrated scientological studies can become a reliable basis of the corresponding state program on the regulation of this migration process. The principles of such regulation could be based both on our own comprehensive studies and on the experience of managing migration processes in those countries, where this problem was and still remains now an urgent social problem. The states, which experienced at one time an economic crisis, difficulties with the financing of basic research, and the spontaneous, absolutely uncontrollable outflow of scientific personnel abroad, are now keeping an anxious eye on the situation in our country. In this regard Armando Jose Latourante de Oliveira Pombeiro, a scientist from Portugal, recently noted that in case of economic confusion science always suffers more strongly and earlier than other sectors of culture, while "the consequences of this are felt over a longer period. When there are no subsidies for basic research, when there is no one to pay for even specific scientific developments, then science dies, while scientists disappear somewhere. If it also happens that way in your country, this will develop into a cultural and industrial catastrophe."

As of 1 January 1993 a new surge of the emigration wave is possible. Most likely it will carry off the "usual" thousands of highly skilled specialists in the area of science and technology and representatives of other forms of intellectual labor. Without their active participation the hopes for rapid and substantial changes in the economy and culture might also not come true. Could Japan and Germany at one time have revived so quickly and with such success, had a large-scale drain of intellect from these countries not occurred? Hardly. The main secret of their economic and technological revival consisted not only in a market economy, but, what is very important, also in their reliance on the intellectual potential of the country.

To the question heard at the beginning of the article: "But is there anyone to drain from our scientific fellowship?" for the present it is possible to reply with confidence and pride: "Of course, there is someone to drain. Our scientists in the area of the basic sciences have a very high rating in the world." But if this question is posed again in three to four years, during which our leaders with regard to the "brain drain" only "sigh and moan" and do nothing on the level of the stabilization of intellectual emigration processes, the response to it may also change.

Footnote

1. V.K. Zvorykin [Zworykin] is a Russian engineer, who emigrated in 1918 and invented television in the United States.

Chemist on Problems of Doing Research Under Present Situation

927A0131A Moscow *KHIMIYA I ZHIZN* in Russian
No 9, Sep 91 p 8

[Article by Roald Hoffmann, winner of the Nobel Prize in Chemistry, under the rubric "Observations": "The State of Chemical Science in the USSR. An Appeal to Scientists of the West"—original article appeared in *CHEMICAL AND ENGINEERING NEWS*, No 3, 1991; translated from English by A.A. Pasynskiy]

[Text] I recently spent 10 days in the Soviet Union—I gave lectures and taught undergraduates. I know this country well, since in 1960 I studied (through the exchange of students) at Moscow University and worked together with A.S. Davydov on the theory of excitons.

I can add hardly anything to the overall picture of the situation in the USSR, which we all visualize as it is from reports of the mass media. These reports are on the whole correct, with allowance made for the usual journalistic exaggerations and the subjective selection of facts. Nevertheless I consider it necessary to tell you about the hopelessly pessimistic mood of young chemists in the USSR and to propose several means of helping them on our, the American, part.

The lines at stores are longer, while there is less food at them than at any time in the last 30 years. The television screen is astonishing for the openness of advertising, the disclosures of communist sins, religious programs, emigre works—in short, everything, literally everything, which at one time was prohibited, is now allowed. (Professor Hoffman left for home in late December 1990—A.P.) Meanwhile the country is disintegrating, ethnic conflicts are intensifying, the economy is on the verge of paralysis. In Soviet chemistry laboratories reagents and solvents were never in abundance, while now the reserves that were carefully put aside are also running out. The barter system of deliveries is destructive, since suppliers demand a great deal of money or are simply being cut off from the system, being transformed in the search for a marketing outlet, which for the present does not exist, into cooperative and private enterprises. Stocks of chemicals: from tetrahydrofurane to dimethyl sulfoxide, from materials for chromatography to plain paper, are dwindling before one's eyes. My Soviet friends assert that due to the lack of reagents chemical research in their country will come to a complete halt by late 1991.

It was never easy to conduct chemical research in the Soviet Union. But, working under difficult conditions, talented people demonstrated that the desire to search for and study new molecules is capable of surmounting difficulties. Therefore, Soviet research was always noted not for routine analysis, but for inventiveness, and Soviet colleagues were optimistic, because a window to the world of chemistry had been opened to them, although they were unable to associate freely with us.

Of what I have seen today, the most frightening thing is the hopeless pessimism of young scientists. They see how their spiritual refuge—the world of modern chemistry—is being destroyed before their eyes. They joke gloomily, their black humor goes so far as to say that it would have been better for the country if in World War II Fascism has won.

How is one to help them? Of course, both personal help and government support are needed. But it seems to me that we, their professional colleagues, should do as much as possible to keep up the spirit of talented, gifted young colleagues from the USSR, who have fallen into despair.

Here is what I suggest.

Maintain personal contacts. If you come across an interesting Soviet work, write the author about this. Send proofs and preprints.

Include Soviet graduates in your graduate programs. Remember how much excitement, how much inventiveness, and how many interesting ideas graduate students from China brought us.

Make places available in your postdoctoral programs to young Soviet candidates of sciences, who until recently (in contrast to their laboratory heads) did not have an opportunity to travel.

Make provision for funds for the attendance by Soviet scientists of meetings of the American Chemical Society and the Gordon Conferences.

Open electronic mail channels with the USSR (an agreement has already been prepared). Now a letter between our countries by ordinary mail takes from one to two months.

For more effective help "adopt" Soviet universities and industrial laboratories on the territory of the United States.

Establish accounts departments at libraries, through which Soviet colleagues could reliably receive copies of scientific articles. Scientific periodicals get to them half a year later, while many western journals, which are published on a commercial basis, are simply not available in their libraries.

Draw up lists of reagents that are necessary for basic research and think out a system of their delivery, which does not interfere with the trade relations of organizations of the USSR and the United States.

But most of all our Soviet friends need personal contacts and information. It is important for them to sense that American chemists know about them and their work and understand the difficulties, with which their Soviet colleagues are faced. It is necessary to help them to joint in our system: to explain how to write a resume (a scientific biographical reference), where to apply for admission to American universities, to tell how postdoctoral vacancies are filled. They need information on where it is possible to obtain some reagents or others. We should assure them that articles can be published in the journals of the American Chemical Society, even if the authors do not have currency to pay for publications. Write them letters, even if months are spent on their forwarding. They have lost hope of receiving our preprints.

Please, let us help them!

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1991

**Center S&T Officials Hope To Continue
Computer Education Programs**

927A0055A Moscow *RABOCHAYA TRIBUNA*
in Russian 5 Nov 91 p 2

[Article by V. Yershov: "The Computer to the
Schools"—first paragraph is *RABOCHAYA TRIBUNA*
introduction]

[Text] The seminar, which was organized by the USSR
Ministry of the Radio Industry and the USSR State
Committee for Public Education, has concluded at the
Konvertor Commercial Demonstration Center, which is
located at the Exhibition of USSR National Economic
Achievements. Its participants discussed the concept of
the development of educational computer packages for
1991-1995.

As is known, seven years ago a program of universal
computer literacy was adopted in the country. However,

during these years computers appeared only at scattered
schools, vocational and technical schools, and tekhn-
kums, particularly in rural areas. According to the esti-
mates of the USSR State Committee for Public Educa-
tion, the need just for school computers for 1991-1995
comes to almost three million.

Will it be possible to fulfill the program of universal
computer literacy? What is it necessary to do for this?
This is the group of questions, which was at the center of
attention of the seminar participants.

"I dare hope that the computerization program will not
disappear," USSR Deputy Minister of the Radio
Industry E. Filtsev said. "The desire and need for its
implementation are great: The era of 'instant decisions'
has arrived, and information society is succeeding indus-
trial society. I will note that the first Ukase of Russian
President B. Yeltsin was devoted to the development of
public education."

U.S. Contracts With Kurchatov Atomic Energy Institute

927A0151B Moscow KRASNAYA ZVEZDA in Russian
12 Mar 92 p 3

[Article from THE NEW YORK TIMES: "'For a Modest Fee' Washington Is Hiring Russian Specialists in Thermonuclear Fusion"]

[Text] The government is hiring more than 100 scientists from Russia so that they would help America use as a source of energy the enormous possibilities of nuclear fusion. Russia was the pioneer in this field, where powerful magnetic fields are used in an attempt to harness the type of thermonuclear "fire," owing to which the sun shines.

This deal is the first known case, when the government availed itself of gifted scientists of Russia, although private industry has already done this.

Russian scientists, who are seized by despair under the conditions of a collapsing economy, can now be hired for practically next to nothing by western standards. According to the conditions of the one-year contract for the sum of \$90,000 the United States will acquire the services of 116 Russian scientists. Although within this sum each scientist accounts for only \$65 a month, this corresponds to the sum of 6,500 rubles [R] a month, which exceeds by more than sevenfold the unofficial average wage for the country of R900.

The scientists should conduct research in the field of nuclear fusion at the Kurchatov Institute of Atomic Energy in Moscow on a thermonuclear reactor, which is known by the name Tokamak, while the research results will be sent to the United States. The U.S. Department of Energy, which is financing similar research in our country, will finance this work.

"This will advance the American program for a very modest fee," Dr. N. Ann Davis, director of thermonuclear research in the department, stated yesterday in one of the interview.

The Russians invented the Tokamak reactor and over the decades built a large number of these gigantic units at the Kurchatov Institute for the improvement of this method.

Meanwhile the administration without a particular fuss blocked the purchases of rockets, rocket motors, reactors, and other aerospace items from the former Soviet Union, in an attempt to undermine the Russian military-industrial complex.

(The report was obtained through the channels of ITAR-TASS.)

Russian Scientist Allegedly Develops Biochemical Weapon for West

927A0151A Moscow DELOVOY MIR in Russian
No 44 (258), 5 Mar 92 p 4

[Article by Nikolay Sinyavin: "The Superbomb That Was Rejected in the USSR. Once More About the Drain of 'Nuclear Brains'"]

[Text] Apparently, a drain of "nuclear brains" from the CIS [Commonwealth of Independent States] to "third world" countries, about which they spoke so anxiously and for so long in the West, will not occur. By the joint efforts of Russia, the United States, Germany, and Japan long-range projects of the support of former specialists of the military-industrial complex of the CIS have been drawn up and are beginning to be implemented with the active participation.

NATO Invitation Elicits Strong Response From CIS Scientists

927A0151C Moscow POISK in Russian No 10 (148),
29 Feb-6 Mar 92 p 1

[Article by Olga Verbitskaya under the rubric "Sensations of Our Days": "Is the Salvation of Science in NATO?"]

[Text] As we already reported, this year the Science Committee of NATO for the first time invited scientists of our country to take part in its measures, the lists of which were published in No 7 and No 8 of POISK. The members of the Russian delegation, which left for the Brussels headquarters of NATO for a seminar of the committee with the participation of representatives of the East European states, took these issues with them.

"The very fact of the publication of the lists made a very strong impression on the NATO scientific community," says Deputy Minister of Science, the Higher School, and Technical Policy of Russia Vladimir Yezhkov, one of the seminar participants. "NATO Deputy Secretary-General Mr. de Kuen, while displaying this publication from the rostrum, stressed that it is a living example of the fact that information in the once 'enemy camp' does is not being repressed, but, on the contrary, immediately gets 'a start in life.'"

NATO Secretary-General Manfred Worner, who participated in the seminar, in his speech noted that even three years ago by NATO instructions it was prohibited not only to admit to the headquarters representatives of the countries of the former Warsaw Pact, but even to establish contacts with their embassies. Today the talk is about collaboration and cooperation.

Strictly speaking, this also was the main goal of the seminar. The NATO countries are reviewing their policy in relations with the countries of Eastern Europe, including in the area of scientific and technology. The speech at the seminar of President of the Russian Academy of Sciences Yuriy Osipov aroused very much

interest. In the West too few people know yet about new academy and are interesting in finding out to what extent it is the legal successor of the USSR Academy of Sciences, which was always considered the main vehicle of the intellectual potential of our country.

The idea that Russian science is not asking the West for aid, but is striving in every way for extensive international cooperation, was heard very clearly at the seminar.

"In my speech I suggested to colleagues to establish in Moscow an information coordinating center of NATO," Vladimir Yezhkov continues. "We are trying to inform the community regularly about what is happening in the Science Committee of NATO. And, of course, to facilitate trips of our scientists to the measures being conducted in NATO."

Incidentally, as we have learned, several scientists have already received invitations from the coordinators of the measures. The contact telephone number, which we also published in POISK, is not silent. There are thousands of people who wish to participate in the NATO seminars. We, on our part, want to recall that any of the candidates can write directly to the coordinating center of the measure that is of interest at the address published in POISK, but only in English. In the letter of application for participation it is necessary to provide information that will help to form an idea of one's scientific level and interests and their conformity to the theme of the measure. The coordinators, after receiving the application, will make themselves the selection of participants and will invite them on the same basis as everyone else. The trips for our scientists will be free—NATO is taking upon itself all the expenses connected with travel and the stay.

Selected Articles on Foreign Recruitment of CIS Scientists

'Head Hunting' by Pacific States

927A0110A Moscow IZVESTIYA (Morning edition)
in Russian 27 Jan 92 p 6

[Article by IZVESTIYA correspondent Sergey Agafonov: "In the West It Is 'Head Hunting' Season"—first paragraph is IZVESTIYA introduction]

[Text] At first foreign experts spoke about this fairly timidly, then foreign politicians spoke about this more distinctly, then our domestic representatives spoke about this, now with some effort. Now, it appears, the talk has ended—the open "hunting for brains" of former Soviet origin, which, incidentally, does not affect the quality of these very "brains," is beginning.

On the pretext that scientists from the deceased Union, who have been worn out by poverty and disorder, might become the prey of "terrorist regimes," the West is beginning to launch a fundamental program of the

"solution" of this problem, which consists, in essence, in one thing—the transfer of scientific personnel and specialists to its laboratories.

There is no slip of the tongue here—it is really a matter of a program of measures, which has both official governmental "okay" and funds that were also allocated along the official line. For the present they are not writing extensively about this, but are preparing public opinion for the reception of the "poor relatives" from science, a special infrastructure for the "competitive selection" of candidates is being developed, the spheres, which are of the main interest for foreign guardians, are also being determined.

By way of proof I will cite as confirmation several examples. As Seoul colleagues recently related, the draft of a plan, which envisages as an "exploratory measure" the invitation of 30 scientists from "the countries of the CIS [Commonwealth of Independent States]" to work in South Korea, was approved at the Korean institute of science and technology (this is a governmental "brain trust" for the elaboration of key directions of the development of the country). For this the president of the institute will leave this Saturday on a special mission to Russia, Ukraine, and Belarus and intends to reach the agreement that 15 scientists will come under contracts to Korea during the first half of this year. Judging from the available data, in Seoul they chose 27 areas of scientific research (for the most part these are electronics, machine building, and the development of new materials), in which our "brains" can be very useful to the Koreans.

As far as I know, a similar plan of "long-range measures" is being actively discussed at present on Taiwan. For the present it is too early, it is true, to talk about a full-scale "personal search" in the Taiwan case, but certain additions to that are already appearing—for example, during talks with Russian representatives the question of dispatching our scientists "for the sharing of experience" to Taiwanese scientific industrial parks and special-purpose laboratories on the terms "your brains—our equipment and financing" was touched upon. Inasmuch as contacts with the distant island are still in embryo, it is not worth expecting a sudden surge of "scientific activity," but there is also no reason to lose sight of the prospect—Taiwan is today the wealthiest "patron" and a serious hunter of scientific innovations.

And, finally, the last example in this series is the Japanese example. According to reports of the local press and other, more "weighty" leaks, a number of Japanese governmental departments jointly prepared a report on the problem of "intellectual emigration" from the former USSR. There was made on its basis the decision to start work on the attraction to Japan of our scientific personnel, the implementation of which was begun at the end of last year under the aegis of the Japanese Science and Technology Agency. The enlistment of "intellectual emigrants" in work on an experimental thermonuclear reactor project, in a "package" of studies of the consequences of Chernobyl, and in the elaboration of themes

in the area of biotechnology, solid-state physics, and other spheres of serious science is envisaged.

In accordance with instructions sent out "from the top" several research institutes engaged in drawing up special lists of "former Soviet individuals," whose use in Japanese laboratories is desirable and expedient. Preliminary interviews with some of our scientists have already been conducted or are being held at present. In case of "mutual agreement" the Japanese corporation for research and development assumes sponsorship of the scientific personnel.

The financing of a "long-term mission" is carried out through governmental channels, the term of the initial "standard contract" is from half a year to two years with the possibility of subsequent extension. As the newspaper YOMIURI SHIMBUN reported, seven Soviet scientists have already begun "service" at four Japanese research centers and feel well.

I do not know whether it makes sense to comment on this entire "invoice." On the one hand, there are the freedom of the individual and the right of a person to choose the place for living and working, where it is better for him. On the other, there is a natural touch of a sense of injury and serious anxiety for our poor homeland. After all, "intellectual emigration" is the threat of an intellectual vacuum for the country. What can be more dreadful?...

Russian Scientists in Japan

927A0110B Moscow PRAVDA in Russian 23 Jan 92 p 4

[Article under the rubric "In 24 Hours": "Japan"]

[Text] Talented, but hard-up scientists from the former USSR are becoming the target of "head hunters" from the Science and Technology Administration (STA) of Japan, which is carrying out the selection of first-class specialists from Soviet research centers, including nuclear physicists. The search for information about them is being carried out by means of the extensive ties, which local scientific research institutes have in Russia, as well as, as the press reports, with the use of diplomatic channels. A representative of the international division of the Science and Technology Agency reported that at present seven Soviet scientists are working in Japan on the invitation of his department, while this year the arrival of another five is anticipated.

70,000 Allegedly Left in 1990

927A0110C Moscow TRUD in Russian 28 Jan 92 p 1

[Article: "In Search of a Better Lot"]

[Text] Tokyo—Up to 70,000 specialists in key fields of science went abroad from the former USSR in search of a better lot in 1990 alone, and at present new thousands

are bombarding western research centers and universities with requests to be hired. Informed American circles reported this to the Japanese newspaper YOMIURI SHIMBUN, which is conducting an independent investigation of the question of the "brain drain" from Russia and the other republics of the Commonwealth of Independent States. In particular, as Roald Sagdeyev, a professor of the University of Maryland and former director of the Institute of Space Research of the USSR Academy of Sciences, reported, in the United States, in addition to him, about 10 Soviet academicians have already gotten a job.

CIA, Mossad Track Nuclear Specialists

927A0110D Moscow IZVESTIYA in Russian 28 Jan 92 p 4

[Article by IZVESTIYA correspondent Maksim Gan: "The CIA and Mossad Came to an Agreement to Track Together Our Atomic Physicists"—first paragraph is IZVESTIYA introduction]

[Text] The problem of the "drain of brains" and nuclear technologies from the countries of the CIS [Commonwealth of Independent States] is causing increasing anxiety in the West. According to estimates of the Institute of International Research of France, from 3,000 to 5,000 Soviet scientists had access to nuclear technology. Of them several tens are working in Israel, nine are working in the United States, and two are working in Germany.

Western experts believe that the potential use of atomic scientists by countries of the Middle East, particularly Libya and Iran, represents a far greater danger than the proliferation of nuclear weapons themselves.

NATO General Secretary Manfred Werner in an interview with the journal BUNTE said that, according to available information, several atomic scientists of the CIS had already received an invitation to work in other countries. He believes that it is necessary to take urgent steps and to provide all former personnel of the defense industry with a job with a high wage.

Admitting that it is extremely difficult to prevent the departure of nuclear scientists from the former Soviet Union, western experts are proposing to keep a strict account of not only nuclear warheads, but also scientists.

The French newspaper LE JOURNAL DU DIMANCHE reported that the United States and Israel had made the decision to establish close cooperation of their special services for the monitoring of atomic scientists who live on the territory of the former USSR. Agents of the CIA and Israel intelligence Mossad have begun to carry out the stepped-up surveillance of specialists in the area of the development of weapons of mass destruction, particularly on the territory of the Central Asian republics, the newspaper claims.

Zinovyev Report on Formation of Bashkir Academy of Sciences

IZVESTIYA Information Report

927A0126A Moscow IZVESTIYA (Morning edition)
in Russian 10 Feb 92 p 3

[Article by IZVESTIYA correspondent Aleksandr Zinovyev: "The Academy: Although Small, Its Own. The Report of IZVESTIYA's Own Correspondent in Bashkiria"]

[Text] The honorary academicians, the first contingent of full members and corresponding members of the Academy of Sciences of Bashkiria, its president and three vice presidents have been elected. The Ukase of the Presidium of the Supreme Soviet of the republic on the status of the Bashkir SSR Academy of Sciences establishes that it is an independent scientific organizational unit with the rights of a department of the Russian Academy of Sciences, organizes its relations with the latter primarily on a contractual basis, and carries out its activity along the lines of self-administration and on the basis of prevailing legislation and its own charter. By this Ukase all the structural units of the Bashkir Scientific Center of the Ural Department of the Russian Academy of Sciences (the former USSR Academy of Sciences) are transferred to the jurisdiction of the Academy of Sciences of Bashkiria.

The Ukase declared the fixed capital and other state property, including the common property, which is on the balance sheet, in the use of, and at the disposal of the above-indicated institutes, divisions, institutions, and organizations, to be the property of the Bashkir SSR Academy of Sciences.

President of the Bashkir SSR Academy of Sciences O. Kaybyshev, director of the Institute of the Superconductivity of Metals, said:

"Our academy is an indissoluble part of the Russian academy, we do not intend to break away from it. It is simply that we have now acquired the same rights as the Ural Department of the Academy of Sciences, in which at one time they included science of Bashkiria by a decision of the Politburo of the CPSU Central Committee, on the initiative of the curator of academic science, the unforgettable Yegor Kuzmich Ligachev, which could not but have wounded national feelings.

"I am convinced that now even great opportunities for research activity are being affording for each of our institutes. Sectorial institutes, which in recent times, with the abolition of union ministries and departments, in general proved to be without owners and demoralized, at last have also found a roof."

RAN Vice President Mesyats Comments

927A0126B Moscow IZVESTIYA (Morning edition)
in Russian 10 Feb 92 p 3

[Article by Academician Gennadiy Mesyats, vice president of the Russian Academy of Sciences and chairman of the Ural Department of the Russian Academy of Sciences: "The Opinion of the Vice President of the Russian Academy of Sciences and Chairman of the Ural Department of the Russian Academy of Sciences"]

[Text] The facts are as follows. According to the Ukase, which was recently promulgated by the President of the Russian Federation and specifies the status of the RAN [Russian Academy of Sciences], the entire material and property base of the Bashkir Academic Center is its property. Consequently, the transfer of the structural units and property of the RAN to the newborn Bashkir Academy is illegal. This is spoken about in the decree that was adopted by the presidium of the RAN.

In conformity with the presidential Ukase, the RAN is guided in the organization of its internal life by its own charter. But the Ukase of the Presidium of the Supreme Soviet of Bashkiria is a violation of the sovereignty of the Russian Academy of Sciences, for in a willful manner, without its consent and even preliminary notification it introduces in it a new subdivision that is not envisaged by the academy charter. They are ordering us, in essence, to recognize as academicians people who we did not elect democratically.

Incidentally, we must not discard everything from the experience of the union Academy of Sciences. I remind those who are now demanding so actively the establishment of "academies in the academy": The service of the union, in the past the Russian, academy of sciences is that fact that it helped all the republics establish their own national academies (moreover, this was not done overnight, as the epidemic has now begun to spread through Russia, but as a really high scientific potential built up), but did not swallow them up and did not make them its subdivisions. On the contrary, it supported their independence in every way, without destroying in so doing the unified scientific space of the country.

We are not at all opposed to the establishment of the Bashkir Academy of Sciences. But not by the "swallowing" of both the structures and the property of the RAN. Now the argument is being advanced that, they say, the Bashkir Scientific Center is in "intermediate" subordination to the Ural Department. But we also do not object to its formation into an independent structure, which does not depend on our department and is directly subordinate to the presidium of the RAN. Naturally, given the observance of its charter and if the majority of the collective of the Bashkir Center agrees to this. Although, of course, precisely unity with the powerful research potential of the Urals gave so much for the development of science in Bashkiria.

Today, as meetings at the institutes showed, the overwhelming majority of scientists do not want to be transferred to the Bashkir Academy. With what might all this end? Really prominent scientists will simply leave, some abroad, some for other regions of the Federation. And the scientific potential and scientific schools, which formed over the course of more than 40 years, will fall apart very quickly.

IZVESTIYA Science Observer Comments

927A0126C Moscow IZVESTIYA (Morning edition)
in Russian 10 Feb 92 p 3

[Article by IZVESTIYA science observer Kim Smirnov: "The Commentary of the IZVESTIYA Science Observer"]

[Text] I am also not at all opposed to the birth of the Bashkir Academy of Sciences. If the republic has the assets to support its founding materially, by all means. Let it be established alongside the subdivisions of the RAN. Let it even enter with it into honest scientific competition.

The warning that by analogy with the disintegration of the Union something similar will also happen in the Russian Republic—one after another its former autonomies will begin to establish their own, we will say frankly, with rare exception, small academies—does not scare me. It does not scare me because this is already an objective reality, because, as our recent President used to say, "the process has begun."

Another thing makes me suspicious. The process has even very actively "proceeded" to the restoration—under the protection of national sovereignties—of the old forms and methods of the administrative management of science, which were developed over the decades.

The text of a letter of President of Russia B.N. Yeltsin to the leaders of the republics of the Russian Federation just now got to my desk: "Well-known scientists have already appealed to me repeatedly. They are worried by the fact that some actions of the local authorities, which have been taken in recent times in violation of the Charter of the Russian Academy of Sciences and the legislation of the Russian Federation, are capable of complicating substantially the process of the reorganization of science, which is difficult as it is.

"In connection with this I appeal to all the leaders of the republics not to take unilateral and uncoordinated steps on questions of the further fate of the scientific potential of Russia, but to regulate future relations in the process of negotiations between the leadership of the Russian Academy of Sciences, the Ministry of Science, the Higher School, and Technical Policy, and the appropriate departments of the republics."

Lithuanian Chemistry Institute Relying on Sales for Survival

927A0117A Vilnius EKHO LITVY in Russian
21 Jan 92 p 5

[Interview with Doctor of Chemical Sciences Prof. R. Visomirskis, director of the Institute of Chemistry, by EKHO LITVY correspondent A. Ilyasevich under the rubric "Our Interview"; date and place not given: "Preserve the Scientific Potential. The Interview of Our Correspondent With Doctor of Chemical Sciences Prof. R. Visomirskis, Director of the Institute of Chemistry"]

[Text] [Ilyasevich] The past year was attended by many economic difficulties which are inevitable when switching to the market form of relations. How did the scientific collective of the institute resolve these difficulties, what problems still have to be overcome?

[Visomirskis] In spite of the limited allocations, which are being earmarked for the development of basic science, we succeeded in preserving the scientific potential. We are earning ourselves approximately half of the necessary assets by selling our technologies to enterprises of Lithuania and other states. But it is becoming more and more difficult to overcome the financial and economic problems. And we are looking at the future not without anxiety.

Until now we had quite a number of clients, which served as the main guarantee of the stability of our financial status. But with the transition to the market form of relations we sensed uncertainty in some of our partners, while at the same time the hope for the strengthening of the institute budget was shaken. The layout is simple: Today we are selling our technologies to approximately 100 enterprises of Lithuania and 2,000 enterprises of the CIS [Commonwealth of Independent States]. It is clear that we depend to a greater degree on the latter. But many enterprises of Russia and the other republics are now in a very serious material position and cannot for the present buy new technologies. And still we have formed permanent business contacts with many of them, since we are trying to offer the potential client what he simply cannot do without. In our creative arsenal there are many fundamentally new developments, the use of which promises a direct benefit in metal production.

[Ilyasevich] Precisely what technologies are meant?

[Visomirskis] These are first of all new technologies of the application of zinc alloy, copper, nickel, and chromium coatings. Scientists of the institute are now also developing such a promising direction as the recovery of metals from production waste. We have arranged with a number of enterprises of the CIS not only the sale of developed technologies for rubles, but also barter deals. In this way we are acquiring a large number of items that are necessary for the republic market. Thus, the Volga Motor Vehicle Works made passenger cars available to us by way of barter, the Moscow Timepiece Plant made

its products available, while we are obtaining spare parts for motor vehicles and household appliances from a number of other enterprises.

As to Lithuania, for it the mentioned technologies are particularly valuable: After all, there are no deposits of nonferrous and precious metals on the territory of the republic. To some extent our methods of reclaiming industrial waste are also making it possible to make up for their lack. Moreover, scientists of the institute in recent years have been working productively in the area of the practical solution of ecological problems: They have been engaged in the development of methods of reducing the harmfulness of chemical plants. And this direction, I believe, is also of definite value for enterprises of the republic.

[Ilyasevich] How are the scientific and business interrelations of scientists of the institute with foreign colleagues taking shape today?

[Visomirskis] We have concluded a contract with a major American corporation that has affiliates throughout the world. Owing to it our technologies are being bought by various foreign firms which produce items made of metal. We have also received a proposal to enter into contractual relations with a major German firm. They already use one of our technologies and intend to buy others. A number of countries of Eastern Europe have also confirmed contracts with our institute. Three scientists of the institute recently did practical studies in Germany, another colleague of ours is practicing at the Washington Institute of Technology and Standards.

[Ilyasevich] What do you see the prospect of the development of chemistry as a basic science in Lithuania to be like?

[Visomirskis] I believe that at first we need to preserve the scientific potential that has already been built up. But in order to preserve it, it is necessary to allocate assets for the remuneration of the labor of scientists and their supply with the necessary equipment. Of course, the wage is not an allowance. It is necessary to set up verification that the material remuneration corresponds to the results of labor. Therefore, at our institute an expert commission evaluates the results of scientific work. If they are high, the level of the remuneration of labor is also high.

[Ilyasevich] Is it possible, in your opinion, to consolidate the position of an academic institute by its integration with a higher educational institution?

[Visomirskis] I believe that integration is a specific problem of the poor state, since if it had sufficient assets, it would allocate as much as is needed to both the academic institute and the higher educational institution. But now, when higher educational institutions are in a difficult situation, a portion of the associates of the institute should participate in educational activity—in

order to help instructors, who are overloaded with educational lecture work, to use a part of the time for science.

The association, to which the Institute of Chemistry, the chemistry faculty of Vilnius University, and the Institute of Biochemistry belong, was established in part precisely for this purpose. The creation of such conditions, when the higher school and science could act in a unified complex, is the task of the association. But in reality, I think, this will look like this: Our associates will assume specific educational loads (at the request of instructors). But with the condition that these instructors would engage in earnest in science. While undergraduates would obtain the opportunity to use well-equipped laboratories of institutes.

At present the government is considering the question of the new status of 30 scientific research institutes, among which ours also is. So that for the present we are as if in a state of suspension: We have already come out from under the "roof" of the Academy of Sciences, but have not yet arrived at full independence. We are placing great hopes for the consolidation of our position on the new status and on the understanding of our problems by the government.

Candidates to Ukrainian Academy of Technological Sciences Announced

927A0118A Kiev HOLOS UKRAYINY in Ukrainian
14 Jan 92 p 15

[Announcement under the "Advertisement" rubric:
"From Ukrainian Academy of Technological Sciences"]

UDC

[Text] In accordance with its Provisions for Elections the Ukrainian Academy of Technological Sciences announces names of nominees for positions of Academicians and Corresponding Members of Ukrainian ATN [Academy of Technological Sciences] nominated on the basis of the announcement in newspapers "Demokratychna Ukrayina", October 30, 1991, and "Holos Ukrayiny", November 20, 1991, by scientific and higher educational institutions, scientific and S&T societies, organizations, enterprises and institutions, and members of the Ukrainian Academy of Technological Sciences.

Nominees for Positions of Academicians of Ukrainian ATN [Academy of Technological Sciences]

"Physico-Chemical Nanotechnologies" Section

Bilyy, Yakiv Ivanovych - Dnipropetrovsk Metal Physics Institute, Ukrainian AN [Academy of Sciences]

Gorodysky, Oleksandr Volodymirovych - General and Inorganic Chemistry Institute, Ukrainian AN

Kuzub, Vladyslav Savelyiovych - Chemical Technologies Institute

"Material Science" Section

Baryakhtar, Viktor Grygorovych - Metal Physics Institute, Ukrainian AN

Dyakin, Viktor Vasylovych - Surface Chemistry Institute, Ukrainian AN

Satskyy, Vitaliy Antonovych - Dnipropetrovsk Integrated Metallurgical Works "Zaporizhstal"

"Technology in Power Industry" Section

Vasylyev, Vsevolod Viktorovych - Problems of Simulation in Power Engineering Institute, Ukrainian AN

Karp, Igor Mykolayovych - Gas Institute, Ukrainian AN p73 "Technology in Machine Building" Section

Buhayets, Anatoliy Oleksandrovych - Scientific Production Association "Turboatom"

Prysada, Volodymyr Mykolayovych - Scientific Educational and Production Center "Integral"

"Technology of Bioagrarian, Food Processing, Processing and Light Industry" Section

Borovskyy, Volodymyr Rudolfovyh - Republican Science and Technology Center on Food Production Problems

Zhukovskyy, Eduard Yosypovych - Odessa Food Processing Industry Technology Institute

Koltunov, Viktor Andriyovych - New Technologies of Preservation, Processing and Sales of Agricultural Products Institute

"Technology in Construction" Section

Borisovskyy, Volodymyr Zakharovych - Ukrainian Cabinet of Ministers

"Geotechnology" Section

Gavrylenko, Mykola Mefodiyovych - Ukrainian State Committee on Geology and Protection of Mineral Wealth

Yeremeyev, Valeriy Mykolayovych - Marine Hydrophysics Institute, Ukrainian AN

Yefremov, Ernest Ivanovych - Geotechnical Mechanics Institute, Ukrainian AN

"Socioeconomic Management of Technologies and Training and Retraining of Professionals" Section

Bersheda, Yevgen Romanovych - Council on Studies of Ukraine's Productive Forces, Ukrainian AN

Nominees for Positions of Corresponding Members of Ukrainian ATN

"Information and Telecommunication Technologies" Section

Amitan, Veniamin Naumovych - Golovininformtsentr [Main Information Center], Donetsk oblyvkonkom [Executive Committee of the Donetsk Oblast Council of Peoples' Deputies]

Grytsenko, Volodymyr Illich - Cybernetics Institute imeni V. Glushkov, Ukrainian AN

Dodonov, Oleksandr Georgiyovych - Problems of Information Recording Institute, Ukrainian AN

Klymenko, Vitaliy Petrovych - Special Design Bureau of Mathematical Machines and Systems, Cybernetics Institute imeni V. Glushkov, Ukrainian AN p73

Kryuchyn, Andriy Andriyovych - Special Design Bureau of Optical Memory Devices

Mezhuyev, Mykola Mykolayovych - Production Association "Pivdenny mashynobudivnyy zavod"

Yakovets, Oleksandr Kostyantynovych - Scientific Research Institute "Akord"

"Physico-Chemical Nanotechnologies" Section

Bazhin, Anatoliy Ivanovych - Donetsk State University

Mazurenko, Yevgen Andriyovych - General and Inorganic Chemistry Institute, Ukrainian AN

Ogenko, Volodymyr Mykhaylovych - Surface Chemistry Institute, Ukrainian AN

Temerti, Gennadiy Fedorovych - Special Design Bureau, Donetsk Physical Technical Institute, Ukrainian AN

"Electronics and Radio Engineering" Section

Vdovin, Sergiy Samiylovych - Dnipropetrovsk State University

Lysenko, Volodymyr Sergiyovych - Semiconductors Institute, Ukrainian AN

Rarenko, Ilariy Mykhaylovych - Chernivtsi State University

Totsenko, Vitaliy Georgiyovych - Problems of Information Recording Institute, Ukrainian AN

Chernenko, Ivan Mykhaylovych - Dnipropetrovsk State University

"Material Science" Section

Bogachenko, Oleksiy Georgiyovych - Electric Welding Institute imeni Ye. Paton, Ukrainian AN

Bondarenko, Borys Ivanovych - Gas Institute, Ukrainian AN

Buravlyov, Yuriy Matviyovych - Donetsk State University

Gorobets, Yuriy Ivanovych - Donetsk State University

Grechanyuk, Mykola Ivanovych - Electric Welding Institute imeni Ye. Paton, Ukrainian AN

Gurin, Vyacheslav Anatoliyovych - Kharkiv Physical Technical Institute

Derevyanko, Vasyl Ivanovych - Dnipropetrovsk Metallurgical Works imeni Petrovskyy

Dorofeyev, Volodymyr Oleksandrovych - Donetsk State University

Zhadkevych, Mykhaylo Lvovych - Special Electrometallurgy Experimental Plant, p73 Electric Welding Institute imeni Ye. Paton, Ukrainian AN

Kyriyevskyy, Borys Abramovych - Casting Problems Institute, Ukrainian AN

Lavrenko, Volodymyr Oleksiyovych - Problems of Material Science Institute, Ukrainian AN

Nerodenko, Volodymyr Mynovych - Electric Welding Institute imeni Ye. Paton, Ukrainian AN

Opalchuk, Andriy Savych - Ukrainian Agricultural Academy

Oshko, Volodymyr Petrovych - Dnipropetrovsk Metallurgical Works imeni Petrovskyy

Rzhanov, Borys Pavlovych - Production Association "Pivdenny mashynobudivnyy zavod"

Samsonenko, Mykola Demydovych - Makiyivka Civil Engineering Institute

Spuskanyuk, Viktor Zakharovych - Donetsk Physical Technical Institute, Ukrainian AN

Starchak, Valentyna Georgiyivna - Chernigiv Technology Institute

Tokiy, Valentin Volodymyrovych - Makiyivka Civil Engineering Institute

Fabulyak, Fedir Grygorovych - Experimental Production Shop, High Molecular Compounds Chemistry Institute, Ukrainian AN

Shapoval, Viktor Ivanovych - General and Inorganic Chemistry Institute, Ukrainian AN

Shumykhin, Volodymyr Sergiyovych - Casting Problems Institute, Ukrainian AN

"Technology in Power Industry" Section

Yeroshenko, Valentyn Andriyovych - Applied Mechanics Scientific Research Institute "Rytm"

Lobunets, Yuriy Mykolayovych - Energy Saving Problems Institute, Ukrainian AN

Morozov, Yuriy Dmytrovych - Dnipropetrovsk State University

Yukhymchuk, Stanislav Oleksiyovych - Zaporizhzhya Machine Building Institute

"Instrument Building and Medical Technology" Section

Zbrutskyy, Oleksandr Vasylyovych - Problems of Mechanics [per original] Scientific Research Institute "Rytm"

Kurochkin, Vadym Ivanovych - Special Design and Technology Bureau, Donetsk Physical Technical Institute, Ukrainian AN

Lozyanyy, Vasyl Ivanovych - Dnipropetrovsk State University p73

Matkovskyy, Andriy Orestovych - Scientific Production Association "Karat"

Molebnyy, Vasyl Vasylyovych - Scientific Research Institute "Kvant"

Osynskyy, Volodymyr Ivanovych - Scientific Production Association "Saturn"

Sagalovych, Vladyslav Viktorovych - Kharkov Physical Technical Institute, Ukrainian AN

Synkov, Mykhaylo Viktorovych - Problems of Information Recording Institute, Ukrainian AN

Tsydelko, Vladyslav Dmytrovych - Kiyiv Polytechnic Institute

"Technologies in Machine Building" Section

Alekseyev, Yuriy Sergiyovych - Production Association "Pivdenny mashynobudivnyy zavod"

Vdovin, Sergiy Ivanovych - Dnipropetrovsk State University

Liptuga, Ivan Vasylyovych - Scientific Production Association "Kysen"

Nazarenko, Oleg Kuzmych - Electric Welding Institute imeni Ye. Paton, Ukrainian AN

Petrenko, Viktor Yevgenovych - Applied Mechanics Scientific Research Institute "Rytm"

Tykhontsov, Oleksandr Mykhaylovych - Dniprodzerzhynsk Industrial Institute

"Aerospace Technologies and Special Control Systems" Section

Zakharin, Mykhaylo Ivanovych - Applied Mechanics Scientific Research Institute "Rytm"

Karpachov, Yuriy Andriyovych - Applied Mechanics Scientific Research Institute "Rytm"

Petukhov, Igor Pavlovych - New Physics and Applied Problems Institute, Ukrainian AN

Serebryanskyy, Volodymyr Mykolayovych - Dnipropetrovsk State University

"Environmental Protection Technologies and Radiation Ecology" Section

Atamanyuk Yuriy Andriyovych - Interbranch Scientific Research Center "Ekologiya" Gudkov, Igor Mykolayovych - Ukrainian Agricultural Academy

Kotov, Kostyantyn Ivanovych - Republican Council, Ukrainian Metallurgists' Scientific Technical Society p73 Kuptsov, Valeriy Ivanovych - Special Design and Technology Bureau and Experimental Production Shop, Surface Chemistry Institute, Ukrainian AN

"Technology of Bioagrarian, Food Processing, Processing and Light Industry" Section

Bondarenko, Gerold Leonidovych - Ukrainian Vegetable and Melon Growing Scientific Research Institute

Zagoruyko, Viktor Afanasiyovych - Scientific Research Grapes and Grape Processing Products Institute "Magrach"

Karnaushenko, Lidiya Ivanivna - Odessa Food Processing Industry Technology Institute

Kyryk, Mykola Mykolayovych - Ukrainian Agricultural Academy

Kishko, Yaroslav Grygorovych - Microbiology and Virology Institute imeni D. Zabolotnyy, Ukrainian AN

Kovalenko, Viktor Ivanovych - Kharkiv Public Catering Institute

Mitsyk, Volodymyr Yuhymovych - Kiyiv Commerce and Economics Institute

Marynchenko, Viktor Afanasiyovych - Kiyiv Food Processing Industry Technology Institute

Rudavska Ganna Bogdanivna - Kiyiv Commerce and Economics Institute

Cherno, Natalya Kyrylivna - Odessa Food Processing Industry Technology Institute

"Technologies in Construction" Section

Balytskyy Viktor Sergiyovych - Construction Industry Scientific Research Institute, Ukrainian Derzharkhbud [expansion not given]

Geyman, Grygoriy Natanovych - Scientific Production Association "Budindustriya"

Gudz, Viktor Korniyovych - Ukrainian Derzhbud [State Construction Committee]

Zolotaryov, Anatoliy Ivanovych - Ukrainian State Corporation of Building Materials Industry "Ukrbudmaterialy"

Plitin, Volodymyr Nykyforovych - Ukrainian Construction Corporation "Ukrbud"

"Geotechnology" Section

Vovk, Oleksiy Onufriyovych - Hydromechanics Institute, Ukrainian AN

Komir, Vitaliy Mykhaylovych - Kharkiv Polytechnic Institute, Kremenchuk Branch

Savchenko, Valeriy Ivanovych - Ukrainian Geological Prospecting Scientific Research Institute, Chernigiv Branch p73

"Socioeconomic Management of Technologies and Training and Retraining of Professionals" Section

Amosha, Oleksandr Ivanovych - Industrial Economics Institute, Ukrainian AN

Bilukha, Mykola Tymofiyovych - Kiyiv Commerce and Economics Institute

Birinberg, Bentsion Mikhelyovych - Industrial Economics Institute, Ukrainian AN

Bogachov, Vasyl Ivanovych - Industrial Economics Institute, Ukrainian AN, Lugansk Branch

Novykov, Valentyn Demydovych - Konakry-Rogbane (Republic of Guinea) Scientific Research Center

Paskhaver, Oleksandr Yosypovych - Economics Institute, Ukrainian AN

Pogrebnyak, Vitaliy Petrovych - Ukrainian Minvuz [Ministry of Higher Education]

Poklonsky, Fedir Yuhymovych - Industrial Economics Institute, Ukrainian AN

Ruban, Vladyslav Yakovych - Scientific Research Problems of Information Head Institute, Ukrainian Ministry of Economics

Onyshchenko, Oleksandr Grygorovych - Poltava Civil Engineering Institute

Situation Critical for Lithuanian Physics Research

927A0108A Vilnius EKHO LITVY in Russian 7 Dec 91
p 3

[Interview with Doctor of Physical Mathematical Sciences Prof. Remigius Baltrameiunas, director of the Institute of Physics of the Academy of Sciences of Lithuania, by L. Grinberg, under the rubric "A Topical Interview"; date and place not given: "Grants and Guarantors"—first two paragraphs are EKHO LITVY introduction]

[Text] In recent decades science of the republic went through three conditional stages in succession. The infant and childhood stage—when it was created almost from nothing, but was needed for show—look, they say,

what a wonderful child we have. The adolescent stage, the period of youth, when "child's play" developed into the stage of comprehension, the critical evaluation of the expediency of what had been carried out. And, finally, the time of maturity, recognition throughout the world, which coincided with the period of political transformations, reorganizations. Through the irony of fate precisely during this "fruit-bearing" period science suddenly found itself in the position of a dependent, to whom they no longer talk directly about the ambiguity of the situation, but, it appears, are on the point of talking. And then it will have to remember everything useful that it did and to ponder what it is capable of doing in the future and how it intends to go on existing.

Anticipating a little, perhaps, the person I am interviewing—Doctor of Physical Mathematical Sciences Prof. Remigius Baltrameiunas, director of the Institute of Physics of the Academy of Sciences of Lithuania—reflects precisely on this—the present and future of Lithuanian science.

[Baltrameiunas] I do not want to dramatize the situation. I want to concretize it. And through the prism of physical science I am trying to evaluate the state of Lithuanian science in general and to forecast its future. Thus, it makes not sense to conceal the fact that this state is, if not critical, then obviously delicate. In what do I see the symptoms of the disease? In the fact that the building of academic science, which for long years seemed to be a rather sound structure, suddenly was shaken. The foundation, as it turned out, is not that solid. While the inhabitants, people who for the most part deserve respect, began to feel very uncomfortable. They said to them: "The building is yours and you are to keep track of its condition." They are erudite people, in the direct sense, not in the figurative sense. And that is why they tried to object: We, they said, have become accustomed to engaging in pure science, not in current repair. And where is one to get assets, materials, and repair specialists? And they heard in response that they should acquire a new occupation, master new specialties, and engage in this themselves. And as for subsidies.... Well, for the time being, for today, they will still allot them something on account of poverty, but tomorrow it will be obvious.

[Grinberg] Let us switch from the language of allegories and metaphors to the language of concrete figures and facts. What is the subsidy that is received annually by the Institute of Physics? According to what principle is it distributed among the laboratories and other subdivisions of the institute? Are there supplements in the budget, which appear due to the efforts of scientists themselves?

[Baltrameiunas] At the Institute of Physics there are 20 laboratories. They are also the basic users of the subsidies. This year about 1.8 million rubles [R] are being allotted to us for these purposes. I will refrain from commenting on the size of the indicated sum, which for present times is more than modest. The annual budget is supplemented by means of economic contracts—this is

another R2-3 million on our credit side. Less the new taxes, which are making an appreciable dent in our "pocket" and are making the revenue pitiful.

Now about how we distribute it. Three years ago, when I took the director's chair, I immediately carried out radical changes. I replaced the system "to everyone in equal shares" with the competitive principle of the defense of projects and the obtaining of so-called grants. If you want to have money for some scientific job, get grants, that is, pardon the pun, guarantors of the expedience of scientific research and its validity. The competitive system gave another advantage. With its introduction the physical scientist began to feel that truly scientific work henceforth has every change not only to be noticed and objectively evaluated, but also to provide in the next two years solid ground under one's feet for goal-oriented research.

[Grinberg] Two years, did you say? Does this mean that after the expiration of this period you no longer provide the same scientist with any guarantees and he needs to begin everything all over again: submit the project, substantiate it, seek grants, and so on?

[Baltrameiunas] But why did you decide that this is so bad? Throughout the scientific world, rather, in its most progressive part, the practice of the necessity of the periodic defense of scientific creativity has existed a long time. Such, if you look into it, is one of the effective forms of the monitoring of scientific activity. In our country during the years of stagnation it was considered the norm to "sit" one's entire life at one job—from the graduation project to retirement. The competitive principle did away with this faulty system and improved institute life. But the times all the same are changing. Policy is different and looks at science differently. Now, when you ask me about the guarantees that I should give every scientist after two years, I reply: Alas, I do not have such guarantees. I am not certain of anything and cannot firmly disagree even with the extreme skeptics who believe that in two to three years physics, just as basic science in general, will no longer exist in Lithuania. People will be found, who will say: Why, strictly speaking, does our republic need pure science, it never existed in Lithuania....

[Grinberg] But it really did not exist, if you do not count the scientific activity around universities and other educational centers.

[Baltrameiunas] It did not, but it appeared. At first for the frondeurs: Some people believe that in Lithuania there is no and can be no science, but it exists! And with the years genuine recognition also came. The entire scientific world appreciated the names and works of many of our scientists. So why destroy what has been achieved?

[Grinberg] It is no secret that the centralized policy of the former Union in the area of scientific activity

ensured academic institutes a quiet life: long-term economic contracts, generous subsidies for "epoch-making" joint research. In what state are our contracts with the other republics now?

[Baltrameiunas] In a fairly deplorable state. A day does not pass that I do not receive one or two rejections. The reason is clear. In the other republics they have also learned to count money. And all the same it is also possible to survive under such conditions. It is necessary to aim at orders that yield Lithuania and the other states a real return. For example, Belarus concluded with us a contract for the study of the consequences of the Chernobyl catastrophe. There are also others that promise a profit and mutual benefit.

[Grinberg] For what part of the state subsidies does the maintenance of power engineering, transportation, machine shops, warehouses—in short, the entire infrastructure—account?

[Baltrameiunas] The institute lays out from its own "pocket" more than R1 million a year for the maintenance of the infrastructure. The breakdown "within" of this R1 million takes place in the following manner: About R400,000 are from the subsidy fund, while the remaining R600,000 are the money that has been earned by associates of the institute. The expenditures are large, and I perceive the underlying reason of your question, which is that they affect the wage of personnel of the institute. They do, of course. One has to economize on everything.

[Grinberg] Including on the number of laboratories and technical services and on maintenance personnel?

[Baltrameiunas] I leave the scientific laboratories alone. This is the sanctum of the institute, its intellect, the scientific potential. I am saying this not for the sake of being witty—such is the real relationship of things. This year I have already cut 80 people from the technical maintenance personnel. I kept only the most necessary people. At the institute 340 people remain, of them a little more than 100 are personnel of the workshops, electricians, and so on. The rest are scientists. And of these 240 about 100 in turn are receiving grants.

[Grinberg] That is, subsidies for the conducting of scientific research. But suppose you found at the university, where you give lectures, one or two promising young people who show hope. Mentally you understand that

science is impossible without the succession of generations. But realistically what can you offer them to start with?

[Baltrameiunas] This fall I hired seven young physicists, whom I actually found at the university. They are promising fellows, who have not been spoiled by today's overemphasis of practice. I hired them without any grants and offered them each R700 a month. And I said mentally: "Work." But only for a year. During this time they should prove their usefulness to science and the institute.

[Grinberg] And if they do not prove it....

[Baltrameiunas] Some will, some will not. The way into basic science will be opened for those who are able to show their worth well. Science, you know, does not like repercussions.

[Grinberg] What do you think of the now popular idea of the integration of the higher educational institution and the academic institute? Many people believe that precisely such a conglomerate will save science and will aim it at a qualitatively new spiral. True, such a point of view comes mainly from the walls of the educational institute.

[Baltrameiunas] In the present situation I categorically do not agree with it. No creative cooperation with subsequent benefit for science and the educational process will occur. The rotation of personnel is necessary here. In other words, instructors of higher educational institutions should go to work for a year or two at an academic institute, and vice versa. But on no account must one replace the process of the creative cooperation of instructors and scientists by mechanical merging. When I hear appeals of this sort, I understand that it is a matter here not of science, but of the appetites of several large educational institutions, which do not have enough of everything, and they want to swallow academic institutes and thereby obtain access to our budget.

[Grinberg] Your forecast: Will the Institute of Physics or some other academic institute disappear in a few years? So to speak, as not being needed.

[Baltrameiunas] I think, I hope that this will not happen. After all, it is a matter not of some separate institute, but of the approach to large-scale science. Of whether or not scientific thought, the scientific potential, the intellect of the republic, which is supported by no means by one university, will disappear. Do not regard it as false enthusiasm, but I believe in the future of Lithuanian science.

'POISK' Science New Briefs 15-21 February 1992

927A0137A Moscow POISK in Russian No 8 (146),
15-21 Feb 92 p 2

[Article]

[Text] Figure

Three-fourths of the assets, which were allocated from the state budget for science in the former USSR, were spent on defense research and experimental design development.

Quotation

"The entire sector of research and development of the former USSR, and Russia is not exception here, in volume and content did not correspond to the capabilities of the country as a whole. While we pumped oil and sold it for gold, we were able to afford to maintain the vast science of the military-industrial complex...."

B. Saltykov, Minister of Science, the Higher School, and Technical Policy of the Russian Federation

Fact

The wage in Soviet science since the 1960's declined continuously relative to the average wage in the national economy.

- **President of the Russian Federation B. Yeltsin promulgated an ukase on education in the system of the Ministry of Science, the Higher School, and Technical Policy of the Committee for the Higher School.** Prof. V. Kinelev, former deputy chairman of the State Committee for Science and the Higher School of Russia, was appointed chairman of the committee.
- **Last week a package of laws on the protection of intellectual property was submitted for consideration by the Supreme Soviet of Russia.** The Council of Nationalities passed the laws "On Trademarks," "On the Legal Protection of the Topologies of Integrated Microcircuits," and "On the Legal Protection of Programs for Computers and Databases" and the Patent Law in the first reading. The Council of the Republic had time to pass only the Patent Law. The fate of the others will be decided this week.
- **Minister of Science, the Higher School, and Technical Policy B. Saltykov became a member of the Coordinating Council for Ecology Policy, which was recently established on the order of the president of the Russian Federation.** The formulation of consistent proposals on the implementation of state policy and the coordination of the activity of ministries, departments, and other bodies of administration on questions of ecology are the basic tasks of the council under the president. In addition to B. Saltykov the ministers of ecology and natural resources, health, agriculture, and fuel and power engineering, as well as the chairmen of the state committees of the Russian Federation became members of the council.

- **Henceforth the departments of the RAN [the Russian Academy of Sciences] can obtain the status of a legal person.** The procedure of its granting will be "permissive." The General and Technical Chemistry Department became the first department, which will enjoy the rights of a legal person and will have a current account and a currency account at the bank.
- **The presidium of the Russian Academy of Sciences gave the "OK" for the organization under the presidium of the Interdepartmental Council for Regional Science and Technology Policy and Cooperation With the Higher School.** The RAN and the Ministry of Science, the Higher School, and Technical Policy will be the "patrons" of the council. The council is being established "for the purpose of the extensive enlistment of the scientific potential of institutions and organizations of the RAN in the socioeconomic and spiritual revival of Russia and in the formulation and implementation of programs and projects of the development of its regions."

"The strengthening of cooperation between science, education, and culture" and "the pursuit on the territory of the Russian Federation of a unified science and technology policy" will also be its tasks.

The presidium of the RAN recommended Academician Vladimir Shorin for the position of chairman of the Interdepartmental Council.

- **The center for regional scientific and technical cooperation (the Renatekhs Center) will be established for the support of the activity of the above-mentioned Coordinating Council attached to the presidium of the RAN.** It will operate as a state enterprise on the principles of cost accounting. The functions of the executive bureau of the Interdepartmental Council will be assigned to the center. The center will inherit the financial assets and property from the Executive Board of Directors for the Organization of the RAN, which is being abolished.
- **The former Siberian Institute of Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation will be left, apparently, "with the banner."** The presidium of the RAN resolved to rename it the Institute of Solar-Earth Physics (ISZF) in connection with the fact that in recent years the basic and applied research of the institute was concentrated on problems of solar-earth physics. Here the presidium of the Siberian Department of the RAN was charged to prepare a petition on the retention for the institute of the state award—the Order of Labor Red Banner.
- **And another name change: The Leningrad Mathematical Economics Institute of the RAN will now be called the St. Petersburg Mathematical Economics Institute.**

Scientists Urged To Apply to NATO-Sponsored Research Programs

927A0135A *Moscow POISK in Russian No 8 (146), 15-21 Feb 92 pp 1, 7*

[Article under the rubric "Sensations of Our Days": "Is the Salvation of Science in NATO?"—second in a projected series of two installments begun in POISK, No 7, 1992]

[Text] The NATO Science Committee conducts annually a number of measures on various scientific problems, to which prominent scientists of many countries are invited. This year scientists of our country will also be able to participate in them. Each interested person should write in English to the coordinator of the measure at the accompanying address. In the letter of application for participation it is necessary to provide information, which will help to form an idea of your scientific level, as well as whether your scientific interests correspond to the theme of the measure. The coordinators, after receiving the application, will themselves make the selection of participants and will invite them on the same basis as everyone else. The trip for our scientists will be free—NATO is assuming all the expenses connected with travel and the stay.

Soon an information and consultation center, which provides assistance in the establishment of these scientific contacts, will be set up under the aegis of the Ministry of Science, the Higher School, and Technical Policy of Russia.

But for the time being the contact telephone number is: 229-04-72 (Vladimir Nikolayevich Kiselev).

ASI—Advanced Study Institute

The program is designed for scientists, who specialize in the corresponding areas or have an advanced general scientific education. World-famous scientists give the lectures and provide in-depth knowledge that is not included in the syllabuses of university courses.

ARW—Advanced Research Workshops

The program is designed for the conducting of seminars, at which the informal exchange of opinions among scientists, who work in related areas, takes place. The goal of the seminars is the elaboration of a critical assessment of the existing knowledge on the most important scientific problems and the determination of the directions of future research.

The Schedule of Measures for 1992

24. "High Density Digital Recording" (ASI)

Prof. G.J. Long, University of Missouri-Rolla, Department of Chemistry, Rolla, MO 65401 USA 7-19 June 1992: Il Ciocco, Italy 910335

25. "Markers in Plant Morphogenesis" (ASI)

Dr. K.A. Roubelakis-Angelkis, University of Crete, Department of Biology, 71110 Heraklion, Greece 13-27 June 1992: Crete, Greece 910329

26. "Mechanical Properties and Deformation Behavior of Materials Having Ultra-Fine Microstructures" (ASI)

Dr. M.A. Nastasi, Los Alamos National Laboratory, Mathematical Science and Technology Division, Los Alamos, NM 87545 USA 14-26 June 1992: Portugal 910303

27. "Magnetism and Structure in Systems of Reduced Dimension" (ARW)

Dr. R.F.C. Farrow, IBM Almaden Research Center, Mail Stop K34/803D, 650 Harry Road, San Jose, CA 95120-6099 USA 15-19 June 1992: Cargese, France 910684

28. "Topology Design of Structures" (ARW)

Prof. M.P. Bendsoe, Technical University of Denmark, Mathematical Institute, Building 303, DK-2800 Lyngby, Denmark 20-26 June 1992: Sesimbra, Portugal 910721

29. "Particle Astrophysics and Cosmology" (ASI)

Prof. M.M. Shapiro, 205 Yoakum Parkway, #2-1720, Alexandria, VA 22304 USA 20-30 June 1992: Erice, Italy 910700

30. "Statics and Dynamics of Alloy Phase Transformations" (ASI)

Dr. P.E.A. Turchi, Lawrence Livermore National Laboratory, Condensed Matter and Analytical Science Division, L-268/Box 808, Livermore, CA 94550 USA 21 June-3 July 1992: Rhodes, Greece 910324

31. "New-Generation Vaccines: The Role of Basic Immunology" (ASI)

Prof. G. Gregoriadis, University of London, Center for Drug Delivery Research, School of Pharmacy, 29-39 Brunswick Square, London WC1N 1AX, UK 24 June-5 July 1992: Cape Sounion, Greece 910734

32. "Changes in Speech and Face Processing in Infancy: A Glimpse at Developmental Mechanisms of Cognition" (ARW)

Dr. B. de Boysson-Bardies, CNRS, Laboratoire de Psychologie Experimentale, 54 Boulevard Raspail, 75006 Paris, France 29 June-4 July 1992: Cassis, France 910706

33. "Protein Synthesis and Targeting in Yeast" (ARW)

Dr. M.F. Tuite, University of Kent, Biological Laboratory, Canterbury, Kent CT2 7NJ, UK 1-8 July 1992: Canterbury, UK 910687

34. "Singularities in Fluids, Plasmas and Optics" (ARW)

Prof. R. Caflisch, UCLA, Department of Mathematics, Los Angeles, CA 90024 USA 5-9 July 1992: Heraklion, Greece (COP) 900643

35. "Gravitation and Quantizations" (ASI)

Dr. B.L. Julia, ENS, Laboratoire de Physique Theorique, 24 Rue l'Homond, 75231 Paris CEDEX 05, France 6 July-1 August 1992: Les Houches, France 910379

36. "Developments in Dynamic Soil Structure Interaction" (ASI)

Prof. P. Gulkan, Middle East Technical University, Civil Engineering Department, 06531 Ankara, Turkey 6-18 July 1992: Antalya, Turkey 900801

37. "The Development of Sex Differences and Similarities in Behaviour" (ARW)

Dr. M. Haug, URA-CNRS 1295, Laboratoire de Psychophysiologie, 7 Rue de l'Universite, 67000 Strasbourg CEDEX, France 10-15 July 1992: Chateau de Bonas, France 900980

38. "New Perspectives in Computer Simulation" (ASI)

Dr. M.L. Klein, University of Pennsylvania, Department of Chemistry, Philadelphia, PA 19104-6323 USA 12-24 July 1992: Alghero, Sardinia, Italy 910699

39. "Bifurcations and Periodic Orbits of Vector Fields" (ASI)

Prof. A. Daigneault, Universite de Montreal, Departement de Mathematique et de Statistique, C P 6128, Succ. A, Montreal, P.Q. H3C 3J7, Canada 13-24 July 1992: Montreal, Canada 910697

40. "Techniques and Concepts of High Energy Physics" (ASI)

Prof. T. Ferbel, University of Rochester, Department of Physics, Rochester, NY 14627 USA 15-26 July 1992: St. Croix, U.S. Virgin Islands 910445

41. "Calculation of NMR Shielding Constants and Their Use in Determining Geometric and Electronic Structures of Molecules and Solids" (ARW)

Prof. J.A. Tossel, University of Maryland, Department of Chemistry, College Park, MD 20742 USA 15-18 July 1992: College Park, MD USA 910712

42. "Remote Sensing and Global Climate Change" (ASI)

Dr. R.A. Vaughan, University of Dundee, Department of Applied Physics and Electronic and Manufacturing Engineering, Dundee DD1 4HN, UK 19 July-8 August 1992: Dundee, UK 910385

43. "Acoustic Signal Processing for Ocean Exploration" (ASI)

Prof. J.M.F. Moura, Carnegie Mellon University, Department of Electrical and Computer Engineering, Pittsburgh, PA 15213-3890 USA 26 July-9 August 1992: Madeira, Portugal 910340

44. "Program Design Calculi" (ASI)

Prof. M. Broy, Technische Universitat Muenchen, Institut fur Informatik, Arcisstrasse 21, D-8000 Muenchen 2, Germany 28 July-9 August 1992: Marktoberdorf, Germany 910736

45. "The New Superconducting Electronics" (ASI)

Dr. H. Weinstock, Air Force Office of Scientific Research, AFOSR/NE, Bolling Air Force Base, Building 410, Washington, DC 20332-6448 USA 9 August-20 September 1992: Waterville Valley, NH USA 910690

46. "Progress in Picture Processing" (ASI)

Dr. J. Zinn-Justin, Cen. Saclay, Service de Physique Theorique, F-91191 Gie-sur-Yvette CEDEX, France 10 August-4 September 1992: Les Houches, France 910708

47. "Quantitative Microbeam Analysis" (ASI)

Dr. A.G. Fitzgerald, University of Dundee, Department of Applied Physics and Electronic and Manufacturing Engineering, Dundee DD1 4HN, UK 16 August-4 September 1992: Dundee, UK 910315

48. "The Anthropocentric Approach to Computer Integrated Production Systems and Organizations" (ASI)

Dr. F. Schmid, Brunel University, Department of Manufacturing and Engineering Systems, Uxbridge UB8 3 PH, Middlesex, UK 23 August-5 September 1992: Egham, UK 910722

49. "Nonlinear Dynamics and Spatial Complexity in Optical Systems" (ASI)

Prof. R.G. Harrison, Heriot-Watt University, Department of Physics, Edinburgh EH14 4AS, UK 24 August-4 September 1992: Edinburgh, UK 910689

50. "Immunochemistry of Human Germ Cell Tumours" (ARW)

Prof. I. Damjanov, Jefferson Medical College, Pathology 203-A, Main Building, Philadelphia, PA 19107 US 24-26 August 1992: Oxford, UK 910730

51. "Molecular Spectroscopy: Recent Experimental and Computational Advances" (ASI)

Prof. R.F. Lourenco, University of Coimbra, Chemical Department, 3049 Coimbra, Portugal 30 August-11 September 1992: Azores, Portugal 910326

52. "Ultrashort Processes in Condensed Matter" (ASI)

Prof. W.E. Bron, University of California-Irvine, Department of Physics, Irvine, CA 92717 USA 30 August-11 September 1992: Il Ciocco, Italy 910592

53. "Mechanisms in Eukaryotic Gene Regulation" (ASI)

Prof. H. Feldmann, Universitat Muenchen, Institut fur Physiologische Chemie, Schillerstrasse 44, 8000 Muenchen 2, Germany 31 August-10 September 1992: Spetsai, Greece 910696

54. "Solid State Lasers: New Developments and Applications" (ASI)

Prof. M. Inguscio, University of Florence, Department of Physics, Largo E. Fermi, 2, 50125 Florence, Italy 31 August-11 September 1992: Elba, Tuscany, Italy 910374

55. "High Pressure Chemistry, Biochemistry and Materials Science" (ASI)

Dr. R. Winter, Philipps-University, Institute of Physical Chemistry, Hans-Meerweinstrasse, 3550 Marburg/Lahn, Germany 1-14 September 1992: Maratea, Italy 910720

56. "Quantitative Diagenesis" (ASI)

Dr. A. Parker, University of Reading, Institute for Sedimentology, PO Box 227 Whiteknights, Reading RG6 2AB, UK 6-19 September 1992: Reading, UK 910707

57. "Crystallization of Polymers" (ARW)

Prof. M. Dosiére, Université de Mons-Hainaut, Département des Matériaux et Procédés, Place du Parc, 20, 7000 Mons, Belgium 7-11 September 1992: Mons, Belgium 910695

58. "Interacting Stresses on Plants in a Changing Climate" (ARW)

Dr. M.B. Jackson, University of Bristol, Department of Agricultural Sciences, Long Ashton Res. Station, Bristol BS18 9AF, UK 14-18 September 1992: Wye, Kent, UK (SGEC) 900971

59. "Multicomponent and Multilayered Thin Films for Advanced Microtechnologies: Techniques, Fundamentals and Devices" (ASI)

Prof. O. Auciello, Microelectronics Center of North Carolina, 3021 Cornwallis Road, Research Triangle Park, NC 27709-2889 USA 21 September-2 October 1992: Bad Windsheim, Germany 910386

60. "Real Time Computing" (ASI)

Prof. W.A. Halang, University of Groningen, Department of Computing Sciences, PO Box 800, 9700 AV Groningen, Netherlands 5-16 October 1992: Dutch Antilles 910698

61. "Specific Approaches in Cancer Therapy: Differentiation, Immunomodulation and Angiogenesis" (ASI)

Prof. N. d'Alessandro, Univ. degli Studi, Ist. di Farmacol., Piazza XX Settembre, 4, 98100 Messina, Italy 17-27 October 1992: Erice, Italy 910355

62. "Coping With Floods" (ASI)

Prof. G. Rossi, Univ. di Catania, Civil Engineering Department, V.le. a Doria 6, 95125, Catania, Italy 3-15 November 1992: Erice, Italy 910366

Academician Opposes Construction of Maritime Underground AES

927A0125A Moscow SOVETSKAYA ROSSIYA
in Russian 7 Feb 92 p 2

[Interview with Academician of the Russian Engineering Academy Boris Fedosovich Titayev, general director of the Pacific Ocean Marine Technologies Joint Stock Scientific Production Association, by T. Orekhov, under the rubric "The Decision on the Construction of a Nuclear Power Plant Has Been Made in the Maritime Region"; date not given (Vladivostok): "They Consulted on the Sly"—first three paragraphs are SOVETSKAYA ROSSIYA introduction]

[Text] The energy crisis in the Far East has already been written about over and over again. Due to the lack of fuel and electric power industrial production is decreasing, state of emergency conditions are being imposed. Children and old people are freezing in cold city apartments, transport is coming to a standstill. The search for efficient solutions, which are called upon to reduce the intensity of the problem, is in full swing.

Recently on the initiative of the kray leadership the Maritime Soviet of People's Deputies made the decision to build here an underground nuclear electric power plant. The step is far from incontrovertible, for the recent debates in this regard are still fresh in the memory of the people of Maritime Kray. At that time the people of Maritime Kray unanimously expressed opposition. Today, apparently, democracy has grown so strong that not only the kray administration, but also the people's deputies themselves considered it unnecessary to ask the opinion of the people. They "consulted" only with a narrow group of specialists. Moreover, precisely those who obviously support the idea of building the nuclear electric power plant.

However, they have plenty of opponents. One of them is Academician of the Russian Engineering Academy B. Titayev, general director of the Pacific Ocean Marine Technologies Joint Stock Scientific Production Association, who for many years has been studying the problems of Far Eastern power engineering.

[Orekhov] Boris Fedosovich, what are your arguments?

[Titayev] I consider the decision simply incompetent. The project is destructive, its implementation is extremely dangerous for the people and nature of the kray.

[Orekhov] Yes, but in our case it is a matter of an underground nuclear....

[Titayev] This provides additional arguments "against." Underground nuclear electric power plants are 2- to

2.5-fold more expensive than surface ones, so that the implementation of the project will cost a minimum of 10 billion rubles. It is proposed to place under the ground a nuclear reactor that was intended for submarines—the creation of the Central Scientific Research Institute imeni Academician Krylov. But pardon me, the specialists of this institute are far removed from the designing of underground nuclear electric power plants. Moreover, their services in the area of nuclear shipbuilding, from the standpoint of reliability and economic efficiency, to put it mildly, are not indisputable.

Further, the Maritime Kray is located in a zone of active tectonism and faults. If a slight earthquake occurred.... The surveying, design, and building of the proposed nuclear electric power plant will take eight to 10 years (and not three to four years, as the authors of the idea assure us). But the Maritime Region is already today on the verge of an energy shortage. So that there will simply be no one to use the electric "manna" from the nuclear electric power plant.

Note that specialists of our association forecast such a prospect two years ago, but the kray authorities did not heed the warning, while the hopes for Sakhalin gas, Yakutsk coal, and Siberian petroleum, as is now clear, proved to be mere illusions.

[Orekhov] Is there a real alternative to the nuclear electric power plant?

[Titayev] The paradox of the energy crisis of the kray consists in the fact that we are literally sitting on incredible reserves of fuel resources. I have in mind gas hydrate—a mineral, which consists of methane and water in a frozen state. On the floor of the world ocean, including the shelves, there is many fold more of it than the world reserves of coal, petroleum, gas, and peat taken together—not less than 15 quadrillion tons! Moreover, the reserves are practically inexhaustible, for gas hydrate is formed continuously. Upon decomposition each cubic meter of it yields 150-180 cubic meters of methane and about 800 liters of fresh water. The conducted research and the specialized production complexes, which have been worked up to technical drawings, make it possible to plan the building of semicommercial plants for the production and processing of gas hydrate on the shores of the Southern Maritime Region, Sakhalin Island, and the Kuril Islands in just one and a half to two years. While the cost of commercial underwater plants, a base ship, the transportation and control system, and the shore infrastructure will be one-seventh to one-fifth the cost of the nuclear plant with an ecologically clean technology.

[Orekhov] Did you familiarize the kray authorities with these developments?

[Titayev] And not only them. Our program on gas hydrates stood up to a most serious examination in the Russian Government and was accepted for budget financing as a state program. But in the present situation the government does not have time for this. I am

convinced: It is possible to solve the problem by the joint efforts of the Far Eastern oblasts and by the attraction of domestic joint stock capital. But the interest of local power structures is needed, yet precisely it is lacking. But then we have offers for credits from the Americans, and not only from them. Abroad they quickly realized the benefit from gas hydrates.

Many specialists in our country and abroad believe that gas hydrate is the future of world power engineering for the unforeseeable future, and I absolutely agree with them. As for the Maritime Region, from the standpoint of the immediate future it is possible to think about the mining of coal from the bottom of the Amur Gulf, on the shore of which Vladivostok stands—there are 200 million tons of it here.

Japan Company Places Want Ad for Russian Computer Specialists

927A0125B Moscow POISK in Russian No 3 (141),
11-17 Jan 92 p 1

[Advertisement]

[Text] **Graphica. Attention!**

The well-known Japanese company, which specializes in the area of computer graphics and computer image processing (software and hardware development), is hiring for temporary work highly skilled engineers who specialize in the following areas:

- three-dimensional graphics—software engineers;
- image processing and pattern recognition—software engineers;
- logic development—electronic engineer;
- microcomputer programming—software engineers.

The competition is being held for the second time. Three Soviet specialists are working in Tokyo under contract with the firm.

The Necessary Conditions for Candidates:

From 27 to 34 years old.

Men.

Specialists in the listed areas, who are fluent in English.

The Conditions Offered by Graphica:

a contract for a period of not less than two years; payment of the fare to Japan; the granting of housing at company expense; a wage of \$25,000 a year.

Information About Graphica Computer Corporation:

capital of 1.535 trillion yen; number of staff members—200; locate in Tokyo-To Prefecture.

All candidates submit questionnaires in Russian and English, which contain information about their age, education, and labor activity, personal data, as well as a short report on their work at present and scientific and practical achievements.

All the information should be sent to the editorial office of the newspaper POISK at the address: 107066, Moscow, Ulitsa Dobroslobodskaya, 5, no later than three weeks from the day of publication of this issue.

Telephone number: 265-50-74

POISK Science News Briefs 11-17 Jan 92

927A0127B Moscow POISK in Russian No 3 (141),
11-17 Jan 92 p 2

[Article]

[Text]

- The Government of Russia has adopted a decree on the Ministry of Education.

According to this document, the organizations and institutions, which serve general educational vocational, and secondary specialized educational institutions, preschool and extracurricular institutions, which earlier were under the jurisdiction of the abolished RSFSR State Committee for Science and the Higher School and the USSR State Committee for Public Education, will now be subordinate to the Ministry of Education of Russia.

The Supreme Federal Council for Education, which will deal with the solution of the most complex problems of the development of the sector, is being organized under the ministry.

- The conference "Soviet-American Dialog in Science and Technology Policy," in which a delegation of the Russian Academy of Sciences headed by Academicians Yu. Osipov and N. Laverov participated, was held in Washington. Scientists of the National Academy of Sciences, industrialists, and staff members of the State Department represented the United States. The problems of the interrelationship of education, science, and industry, questions of the training of specialists for science-intensive sectors of industry, and the new American general educational program were discussed. The financing of science (as it turned out, in the United States the states are assuming a greater and greater load in this matter) and the problems of the ratio of basic and applied science and the development of civilian and military technologies were also discussed.
- This year Russia, apparently, will begin to actively combat the "brain drain." In the draft of a decree of the government of the Federation one of the chapters is devoted to this problem. Among those, who, perhaps, will be charged with the implementation of steps that are aimed at counteracting the outflow of scientific personnel and attracting foreign scientists to

our country, are the Minister of Foreign Affairs, the Ministry of Science, the Higher School, and Technical Policy, the RAN [the Russian Academy of Sciences], and the Ministry of Labor and Employment of the Population.

- The First Congress of the Russian Association of Neural Information Science was held at the Institute of Information Transmission Problems of the RAN. This scientific society, which was established at the constituent conference in April 1991, unites researchers and developers in the area of the analysis of the principles of the operation of natural neural systems and the development of information processing devices on the basis of these principles—neurocomputers. This scientific and technical trend ("the sixth generation of computers") since 1986 has been going through a period of rapid growth and development practically throughout the world.

Eighty six representatives of more than 30 scientific research collectives from Moscow, St. Petersburg, Nizhniy Novgorod, Novosibirsk, Krasnoyarsk, Irkutsk, and other cities of Russia attended the congress.

Among the measures of the RASNI [Russian Association of Neural Information Science] in 1992 are: monthly seminars on neural circuits and the theory of neural networks, an international symposium on neural information science and neurocomputers.

- Three newly constructed 100-apartment buildings will be required by the Russian Academy of Sciences in 1992 for the accommodation of foreign scientists who are being attracted to conduct basic research in Russia. It is planned to ask the government of Moscow about the allocation of house at the expense of the Russian Academy of Sciences. The academy also need a hostel for the accommodation of graduate students from the sovereign states. Whether it will be built also depends on the plans of the city government.
- The presentation of the International Federation of Free Education was held at the Palace of Young People. The work on the establishment of the new organization was begun back in 1989, when the Free Education Fund was established in our country. But the charter of the International Federation was registered only in November 1991. Today Sweden, Indonesia, and Czecho-Slovakia are also members of it. In Russia work is already being performed on 50 programs. Their goal is the development in our country of various forms of education, which existed previously in Russia or have been tested in other countries. One of the basic demands of the International Federation of Free Education is the noninterference of the state in the content of the instruction of children and the training of teachers and cooperation with state structures in the area of the material supply of education. Educators and scientists—such as Doctor of

Philosophical Sciences O. Gennisaretskiy and Candidate of Philosophical Sciences V. Bibler—belong to the expert council of the new organization, which is headed by well-known educator Ye. Shuleshko. The president of the International Federation of Free Education is psychologist D. Arosyev.

- A conference of executives of organs of public education and rectors of pedagogical institutes and universities was held in the Ministry of Education of Russia. Questions of the stabilization of the educational system and problems of the activity of organs of the management of education during the period of the transition to a market were discussed.

The conference participants were able to make the acquaintance of the new deputy minister of education, who was appointed several days ago. A. Asmolov, chief psychologist of the former USSR State Committee for Public Education, became him.

POISK Science News Briefs 20-26 Dec 91

927A0127A Moscow POISK in Russian No 52 (138),
20-26 Dec 91 p 2

[Article]

[Text]

- A meeting of the Council of Presidents of the Academies of Sciences of the states, which were a part of the USSR, was held.

The presidents of 14 republic academies and the USSR Academy of Sciences were the members of the council, which was established a little more than a year ago. Now President of the RAN [Russian Academy of Sciences] Yuriy Osipov has joined them. It was decided that Guriy Marchuk will remain the chairman of the council for the immediate future.

- At the same meeting of the Council of Presidents the question of the organization of an academy-association of the Academies of Sciences of the independent states was considered. The draft of its charter was discussed.

This will be an independent nongovernmental organization. The new academy-association will unite all the full members of the national academies. In the draft of the charter it is written that the academy will carry out the expert evaluation of the state of the basic sciences and the forecasting of their development and will conduct independent scientific examinations and consultations. One of its main tasks is the strengthening of interacademy cooperation in the area of basic research. The academy will not have its own scientific institutions.

The draft of the charter for the most part was supported by all 14 presidents (the president of the Academy of Sciences of Moldova was unable to take part in the meeting, but it is known that this academy also intends to become a member of the association). The draft will

be sent to the republics for approval by the supreme bodies of power and initialing (in March) by the presidents of the academies.

- The amount of the stipend for graduate students, who are studying with leave from work in graduate studies at higher educational institutions and scientific research institutes, for good undergraduates of correspondence higher educational institutions and students of secondary specialized educational institutions of Russia as of 1 January 1992 will be determined on the basis of the minimum amount of the remuneration of labor, which was established by the RSFSR Law "On the Increase of the Minimum Amount of the Remuneration of Labor." Let us recall: The minimum amount is 342 rubles a month with allowance made for the compensation that was introduced in April.
- Suppliers have decided to follow in the footsteps of the three Slavic presidents. The organizations of material and technical supply of the Academies of Sciences of Russia, Ukraine, and Belarus will hold at the end of January in Minsk a meeting, at which questions of the further material and technical supply of basic research and the formation of coordinating organs of the supply of the Academies of Sciences of the independent states will be discussed. Executives of academic supply organizations of the former USSR have been invited to the meeting.

The contact telephone numbers in Minsk: 64-47-48, 63-27-80, 64-36-20.

- The exhibition center of the RAN jointly with the presidium of the academy and the Akadempribor Association organized one of the last exhibitions this year. Ten academic institutes and design bureaus presented at the Academic Instrument Making-91 Exhibition about 80 exhibits. Among them: geophysical instruments for the monitoring of deep burials of toxic substances, for the ecological monitoring of cities and industrial installations, laser spectrometers, computer optics, instruments and equipment for research in the area of organic chemistry and catalysis.

The exhibition was organized in order to expedite the introduction of academic developments and instruments, as well as for the establishment of ties with enterprises of Russia.

- The Conference "Creative Giftedness: Problems, Research, Solutions" has concluded at the Moscow City Palace of Creativity of Children and Youth. Its organizer was the Interrepublic Charitable Foundation for the Development and Support of Gifted Children and Young People, the sponsor was the Transekspo Union. The conference participants discussed the problems of the selection and development of gifted children and adolescents, the prospects of the creation of developing programs and aids, and the problems of training teachers for particularly gifted

school children. The possibility of assistance and advise to the parents of young gifted people was discussed separately. G. Yagodin opened the conference.

- In the draft of the Russian Law on Education, which was proposed in the first reading to deputies, there are significant changes as compared with the text of the draft that was published by UCHITELSKAYA GAZETA. They, in the opinion of representatives of public organizations, which on 7 December organized the picketing of parliament, make the document even more conservative.

Since even all the members of parliament do not have the new text of the draft, the Association of Instructors of Higher Educational Institutions and the Parents' Association were forced to duplicate it independently and to distribute it to all enterprising groups that are engaged in the preparation of proposals for the revision of the draft of the Law on Education.

- The exhibition "40 Space Development Projects" has opened at the Exhibition of National Economic Achievements in the Biology Pavilion. The author of all 40 is G. Polyakov, docent of the Physics and Mathematics Faculty of Astrakhan Pedagogical Institute. The exhibition was to the liking of the press—the new journal CHUDESA I PRIKLYUCHENIYA intends to publish about 10 projects on its pages. At the end of December the exhibition will move to the building of the Committee for the Defense of Peace.
- The report that in the settlement of Peredelkino the International University plans to open a school for the children of staff members of the American embassy and to teach them for dollars, has crept in the press. According to our information, there are no such plans.
- To all appearances, next year the readers of YUNYIY TEKHNIK and TEKHNIKA-MOLODEZHI will be unable to receive their favorite publications. Both journals are on the verge of closing due to the serious material state.

'POISK' Information Summary on Russian Science 6-12 December 1991

927A0115A Moscow POISK in Russian No 50 (136),
6-12 Dec 91 p 2

[Article]

[Text] The departments of the Academy of Sciences have prepared and submitted basic research programs for 1992. The amounts of assets, which are necessary for their implementation, have also been specified. The Main Economic Planning Administration of the Academy is now analyzing the proposals of the departments with regard to financing. In the opinion of executives of the administration, in the requests of the departments "not

only are their needs taken into account, but the present possibilities of the budget are also appraised realistically."

The central organs of state administration of the RSFSR have finally been officially specified. Among them is the Ministry of Science, the Higher School, and Technical Policy, to which there have been turned over "questions of the higher school from the RSFSR Ministry of Education." The corresponding material and technical resources, financial assets, the corresponding staff of personnel of the central apparatus of the Ministry of Education, and the allocations for its maintenance were also turned over.

In accordance with the appendix to the Ukase of the President of Russia "On the Reorganization of the Central Organs of State Administration of the RSFSR" the property, financial and other assets, enterprises, organizations, and institutions of the USSR State Committee for Science and Technology, the USSR State Committee for Public Education (in the area of higher education), the USSR Higher Certification Commission, and the USSR State Patent Office are being turned over to the Ministry of Science, the Higher School, and Technical Policy of Russia.

The Main Scientific Organization Administration of the Academy of Sciences has prepared the draft of a plan of meetings, conferences, symposiums, seminars, and congresses in the area of the natural and social sciences. In 1992, 315 measures should take place. The plan of the conducting of schools (64) for young scientists was also drawn up. The implementation of these plans will depend on the positions of the councils of ministers of the republics of the former Union, to which the drafts were sent for approval.

A gala meeting, which was devoted to the 50th anniversary of the defeat of German troops near Moscow, was held in the presidium of the Academy of Sciences. About 50 associates of the Academy, who participated in the defense of Moscow and in the counteroffensive that began on 5 December 1941, attended it. Academicians A. Fokin and A. Prokhorov, G. Manekin, chairman of the Council of Veterans of the Academy, and staff worker A. Zaytseva were among those who within army units and the home guard defended the capital.

On the threshold of the international conference "Armed Forces and Military Service in the Rule-of-Law State" the seminar "Scientific Problems of Strategic Stability in the World" was held at the Academy of Sciences. Scientists of the Academy (among them were Academician N. Moiseyev, General G. Legasov, chief expert of the Academy of Sciences for problems of international security, and Doctor of Technical Sciences A. Menshikov) and representatives of the NATO delegation, which came to the conference, met. The problems of the assurance of international security, the role of the United Nations in the maintenance of strategic stability, and the technical

aspects of the implementation of the initiative of President G. Bush on international participation in the SDI program and of President M. Gorbachev on the monitoring of the launch of ballistic missiles were discussed. The exchange of opinions showed "a coincidence or proximity of views on many issues." True, the servicemen from NATO declined to sign the joint resolution, since they did not have sufficient authority to do this.

The constituent conference of the Russian Academic Association of Patent Experts and Lawyers was held at the Noginsk Center of the Academy of Sciences. Representatives of Moscow, St. Petersburg, Kazan, Perm, Irkutsk, and other cities of Russia took part in the conference. The charter was adopted. The president was elected—Gennadiy Samokhvalov, chief of the patent department of the Institute of Problems of Mechanics, became him. The association will protect the occupational and social rights of patent experts and lawyers and will ensure the exchange of specialized information. The establishment at the regional branches of cost accounting enterprises, to which association members will be drawn for work, is proposed. The association will admit to its ranks not only professional patent experts and lawyers, but also other scientific associates of academic organizations.

Contact telephone numbers: 135-22-90, 135-64-47.

The new, 12th section has appeared in the Poisk Youth Scientific and Technical Society attached to the Moscow City Palace of Creativity of Children and Youth. The section is called "The Cosmos and Man" and is engaged in the study of the philosophy of Russian cosmism. School children are devoting particular attention to the philosophical system of Yelena and Nikolay Rerikh. A conference on the results of an expedition to the Altay "by the Rerikh route" was just held. A group under the supervision of Irina Feodulova approached closely the legendary Mount Belukha and conducted studies of the plant and animal world of the Altay at a significant altitude. The Apogey firm was the sponsor of the expedition. Scientists of the Institute of Oriental Studies and the Rerikh Foundation are now conducting lessons with members of the section "The Cosmos and Man."

Moscow Technology Exchange Begins Trading in December

927A0119A *Moscow ROSSIYA in Russian*
27 Nov-3 Dec 91 p 9

[Article by Irina Koroleva: "Soviet Technologies Are For Sale"]

[Text] The first bids on the International Exchange of Science-Intensive and Information Technologies (MBNIT), which was founded in Moscow on 2 October 1991, are planned for the end of December.

Two powerful scientific production associations—the Kompozit Scientific Production Association of the Ministry of General Machine Building and the Luch Scientific Production Association of the Ministry of Machine Building for Nuclear Power Engineering—and two small enterprises—the Alba Small Enterprise and the Astsenent Multisectorial Small Enterprise—founded the exchange with the approval of the USSR Supreme Economic Council.

The exchange is an open-end joint-stock company with initial authorized capital stock of 4 million rubles [R]. Now the joint-stock company intends to increase it to R100 million, therefore, as of 12 October it opened the subscription to its shares.

The holding of three shares will enable the shareholder to open a brokerage office in one of the three sections of the exchange, while the holding of nine shares will enable him to have a full brokerage seat. However, he will not be able to have more than 20 percent of the shares or to have in one section more than two brokerage seats. Three sections—the technology section, the commodity section (the products of science-intensive works), and the stock section—will work on the exchange.

In the words of Pavel Elburikh, administrator of the exchange, any legal person can become a stockholder, but preference is given to those of them, who have a bearing on science-intensive works.

A world-level commodity—Soviet technologies—lies hidden, Elburikh says, in the depths of domestic science-intensive works. Today there are many buyers for them both within the country and outside it. The exchange is called upon to give assistance to enterprises in the introduction in production of the latest advanced technologies and to unite the interests of scientists, businessmen, and production workers.

But for the time being lively preparation for the first bids is being carried out at the International Exchange of Science-Intensive and Information Technologies. A data bank is being created. Information from the expert division and patent and license division, where orders for the purchase and sale of technologies, scientific developments, and ideas are taken, is accumulating in it. Thus, by the time that the first brokerage offices are registered at the exchange, they will have something to offer their clients. Subsequently information from organizations, with which the exchange has concluded contracts, will also enter the data bank. These are scientific research institutes of information, computer centers of various state structures, and others.

Thinking about the future, the International Exchange of Science-Intensive and Information Technologies became one of the founders of the All-Russian Center of Technologies (VTsT), which will engage in the search for ideas, developments, and technologies in the country and abroad. The exchange will cooperate closely with it.

Moreover, it is planned to open a bank, which will be occupied with the servicing of the exchange and the All-Russian Center of Technologies, and to establish an insurance company, an advertising agency, and an auditing firm. Other subdivisions—a factoring firm and a holding firm—will also become a part of this concern. In short, the founders of the exchange contemplated ensuring a complete closed cycle, which will begin with the search for a promising idea or technology and will conclude either with its sale or with its implementation and, thus, with the opening of small or joint enterprises and works.

Foreign firms, with several of which, for example, Austrian, South Korean, and American firms, cooperation is already being established, are displaying interest in the exchange.

As Pavel Elburikh stresses, he and his associates, who are establishing the International Exchange of Science-Intensive and Information Technologies, hope that by their activity they will help to halt the process of the drain of Soviet brains abroad. For this they are trying to create the most comfortable conditions for those people, who have ideas and who want to see them implemented. So that these people would go to the West only in order to spend the weekend with relatives, and would not leave their homeland forever.

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